IEE Proceedings

The Institution of Electrical Engineers, Savoy Place, London WC2R 0BL, United Kingdom
Publishing Department: Michael Faraday House, Six Hills Way, Stevenage, Herts. SG1 2AY, United Kingdom

Volume 138 1991

The *IEE Proceedings* is published in ten Parts, as follows:

Part A: Science, Measurement and Technology

Part B: Electric Power Applications

Part C: Generation, Transmission and Distribution

Part D: Control Theory and Applications

Part E: Computers and Digital Techniques

Part F: Radar and Signal Processing

Part G: Circuits, Devices and Systems

Part H: Microwaves, Antennas and Propagation

Part I: Communications, Speech and Vision

Part J: Optoelectronics

Six issues of each Part are published during the year.

This publication is copyright under the Berne Convention and the International Copyright Convention. All rights reserved. Apart from any copying under the UK Copyright, Designs and Patents Act 1988, Part 1, Section 38, whereby a single copy of this article may be supplied, under certain conditions, for the purposes of research or private study, by a library of a class prescribed by The Copyright (Librarians and Archivists) (Copying of Copyright Material) Regulations 1989: SI 1989/1212, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission of the copyright owners. Permission is, however, not required to copy abstracts of papers or articles on condition that a full reference to the source is shown.

Single copies may be made for the purpose of research or private study.

Authorisation to photocopy items for internal or personal use, or for the internal or personal use of specific clients, is granted by the Institution of Electrical Engineers for libraries and other users registered with the Copyright Clearance Center Transactional Reporting Service, provided that the base fee of $3.00 per copy is paid directly to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA. 0143-702X/91 $3.00 + 0.00. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

Multiple copying of the content of this publication without permission is always illegal.

Photocopies of individual papers published in the *IEE Proceedings* can be supplied from the IEE Library at 10p per page plus a handling charge. The handling charge is waived if reprints are collected from Savoy Place by purchasers.

The telephone number of the IEE London office is 071 240 1871; telex: 261176 IEELDN G; facsimile: 071 240 77 35.

The IEE is not as a body responsible for the opinions expressed by individual authors.
The IEE is a member of the Association of Learned & Professional Society Publishers.

© 1991: The Institution of Electrical Engineers

Secretary of the IEE: J.C. Williams, PhD, FEng, FIEE
Managing Editor: Gill Wheeler
Graphics Manager: Maurice Partridge

Typeset by: Santype International Limited, Salisbury, Wiltshire, United Kingdom
Printed by: Unwin Brothers Limited, Old Woking, Surrey, United Kingdom
and Black Bear Press, Cambridge, United Kingdom

IEE Proceedings

The Institution of Electrical Engineers, Savoy Place, London WC2R 0BL, United Kingdom
Publishing Department: Michael Faraday House, Six Hills Way, Stevenage, Herts. SG1 2AY, United Kingdom

Volume 138 1991

The *IEE Proceedings* is published in ten Parts, as follows:

Part A: Science, Measurement and Technology

Part B: Electric Power Applications

Part C: Generation, Transmission and Distribution

Part D: Control Theory and Applications

Part E: Computers and Digital Techniques

Part F: Radar and Signal Processing

Part G: Circuits, Devices and Systems

Part H: Microwaves, Antennas and Propagation

Part I: Communications, Speech and Vision

Part J: Optoelectronics

Six issues of each Part are published during the year.

This publication is copyright under the Berne Convention and the International Copyright Convention. All rights reserved. Apart from any copying under the UK Copyright, Designs and Patents Act 1988, Part 1, Section 38, whereby a single copy of this article may be supplied, under certain conditions, for the purposes of research or private study, by a library of a class prescribed by The Copyright (Librarians and Archivists) (Copying of Copyright Material) Regulations 1989: SI 1989/1212, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission of the copyright owners. Permission is, however, not required to copy abstracts of papers or articles on condition that a full reference to the source is shown.

Single copies may be made for the purpose of research or private study.

Authorisation to photocopy items for internal or personal use, or for the internal or personal use of specific clients, is granted by the Institution of Electrical Engineers for libraries and other users registered with the Copyright Clearance Center Transactional Reporting Service, provided that the base fee of $3.00 per copy is paid directly to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA. 0143-702X/91 $3.00 + 0.00. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale.

Multiple copying of the content of this publication without permission is always illegal.

Photocopies of individual papers published in the *IEE Proceedings* can be supplied from the IEE Library at 10p per page plus a handling charge. The handling charge is waived if reprints are collected from Savoy Place by purchasers.

The telephone number of the IEE London office is 071 240 1871; telex: 261176 IEELDN G; facsimile: 071 240 77 35.

The IEE is not as a body responsible for the opinions expressed by individual authors.
The IEE is a member of the Association of Learned & Professional Society Publishers.

© 1991: The Institution of Electrical Engineers

Secretary of the IEE: J.C. Williams, PhD, FEng, FIEE
Managing Editor: Gill Wheeler
Graphics Manager: Maurice Partridge

Typeset by: Santype International Limited, Salisbury, Wiltshire, United Kingdom
Printed by: Unwin Brothers Limited, Old Woking, Surrey, United Kingdom
and Black Bear Press, Cambridge, United Kingdom

Index

IEE Proceedings

Vol. 138, 1991

ABBREVIATIONS

- p paper, address or lecture
- d discussion on a paper
- a abstract of paper or address
- e errata
- s synopsis of a paper published in full in another Part of the IEE Proceedings

Author index

217 Group, COST Cost 217 intercomparison and analysis of fibre mode field diameter measurements **J** p373

A

Abbas, N.A.M., and Stoll, R.L. see Stoll, R.L.
Abd-El-Barr, H.M. Systematic realisation of binary and multivalued logic functions using charge coupled building blocks **G** p694
Abdel-Halim, M.A., and Manning, C.D. Modelling a laminated brushless exciter-alternator unit in all modes of operation **B** p87
Abdel-Motaleb, I.M., and Lin, H.-K. see Lin, H.-K.
Abdel-Motaleb, I.M., and Ryum, B.R. see Ryum, B.R.
Abdel-Motaleb, Ibrahim M., and Huang, C.N. see Huang, C.N.
Abdul Mottalib, M., and Dasgupta, P. Design and testing of easily testable PLA **E** p357
Abuelma'atti, M.T. Harmonic and intermodulation performance of analogue CMOS circuits owing to mobility reduction **G** p65
Abuelma'atti, M.T. Modelling of capacitively (resistively)-loaded uniform RC lines for computer aided analysis **G** p463
Abuelma'atti, M.T. Nonlinear distortion of an FM signal by a passive network **G** p61
Abuelma'atti, M.T. Prediction of RFI demodulation in BiFET, BiMOS and CMOS operational amplifiers **G** p56
Aburdene, M.F., Nandi, A.K., Constantinides, A.G., and Dologlou, I. see Nandi, A.K.
Adachi, H., Chino, T., Matsuda, K., and Shibata, J. see Chino, T.
Aga, K., Hayashi, H., Yano, H., Kamei, H., and Sasaki, G. see Hayashi, H.
Agathoklis, P., and Sreeram, V. see Sreeram, V.
Aggarwal, S., and Bhattacharyya, A.B. Low-frequency gain-enhanced CMOS operational amplifier **G** p170
Aghvami, A.H., and Sadiq, L. see Sadiq, L.
Ait-Boudaoud, D., Ibrahim, M.K., and Hayes-Gill, B.R. Novel cell architecture for bit level systolic arrays multiplication **E** p21
Al-Aubidy, K.M., Binns, K.J., and Shimmin, D.W. see Binns, K.J.
Al-Awad, N.A., Krishnamurthi, V., and Sa'id, W.K. see Krishnamurthi, V.
Al-Bawy, I., and Farish, O. Charge deposition on an insulating spacer under impulse-voltage conditions **A** p145
Al-Bawy, I., and Farish, O. Insulator flashover in SF_6 under impulse voltage conditions **A** p89
Al-Charchafchi, S.H., and Kanakaris, P. Study of varactor tuned microstrip rhombic resonators **H** p383
Al-Jalili, Y.O. Analysis and detection algorithms for complex time zeros of bandlimited signals **I** p189
Al-Jalili, Y.O., and Lockhart, G.B. see Lockhart, G.B.
Al-Sammak, A.I.J., and Rahim, A.H.M.A. see Rahim, A.H.M.A.
Al-Saqabi, K.H., and Davis, E.W. Extending parallelism to memory hierarchies in massively parallel systems **E** p193
Al-Taee, M.A., Mellor, P.H., and Binns, K.J. see Mellor, P.H.
Al Zahawi, B.A.T., Jones, B.L., and Drury, W. Electrical characteristics of alternative recovery convertors for slip-energy recovery drives **B** p193
Alberti, G., Franceschetti, G., Pascazio, V., and Schirinzi, G. Time-domain convolution of one-bit coded radar signals **F** p438
Aldeen, M., and Marsh, J.F. Decentralised proportional-plus-integral design method for interconnected power systems **C** p263
Alder, C.J., Brewitt-Taylor, C.R., Dixon, M., Hodges, R.D., Irving, L.D., and Rees, H.D. Microwave and millimetre-wave receivers with integral antenna **H** p253
Alder, M., Haig, T.D., and Attikiouzel, Y. see Haig, T.D.
Alder, M.D., Togneri, R., and Attikiouzel, Y. Dimension of the speech space **I** p207
Aleixandre, V., Vega, P., and Prada, C. see Vega, P.
Ali, W., and Burghart, J.H. Effects of lag controllers on transient response **D** p119
Allan, J., Brown, J.C., and Mellitt, B. see Brown, J.C.
Allan, R.N., and Roman, J. Reliability assessment of hydrothermal generation systems containing pumped storage plant **C** p471
Allen, N.L., Boutlendj, M., Lightfoot, H.A., and Neville, R.B. see Boutlendj, M.
Allen, N.L., and Boutlendj, M. Study of the electric fields required for streamer propagation in humid air **A** p37
Allwright, J.S., Baldwin, P.J., Boswell, A.G.P., and Brewster, D.C. see Baldwin, P.J.
Alolah, A.I. Capacitance requirements for three phase self-excited reluctance generators **C** p193
Alphones, A., and Tsutsumi, M. Optical probing of millimetre waves in semiconductor waveguides **H** p460
Alves de Silva, A.P., Quintana, V.H., and Pang, G.K.H. Solving data acquisition and processing problems in power systems using a pattern analysis approach **C** p355
Aly, M.S., and Wong, T.T.Y. Scattering of a transient electromagnetic wave by a dielectric sphere **H** p192
Aly, S., Yamazaki, K., and Falconer, D. see Yamazaki, K.
Amarasinghe, S.K., and Green, D.H. see Green, D.H.
Anagnostou, M.E., and Sparaggis, P.D. Analysis of asynchronous multiplexers for periodic traffic in integrated broadband networks **I** p481
Anand, D.K., Anjanappa, M., and Kirk, J.A. see Anjanappa, M.
Anastassiou, D., and Papananos, Y. see Papananos, Y.
Anderson, F., Christensen, W., Fullerton, L., and Kortegaard, B. Ultra-wideband beamforming in sparse arrays **H** p342
Ando, M., Murasaki, T., and Kinoshita, T. Elimination of false singularities in GTD equivalent edge currents **H** p289
Anjanappa, M., Anand, D.K., and Kirk, J.A. Application of stochastic optimal control to thin rib machining **D** p228
Ankiewicz, A., and Peng, G.-D. see Peng, G.-D.
Antoniou, A. Improved minimax optimisation algorithms and their application in the design of recursive digital filters **G** p724
Antoniou, A., Sunder, S., Lu, W.-S., and Su, Y. see Sunder, S.
Antoniou, A., Venkateswarlu, T., and Eswaran, C. see Venkateswarlu, T.
Antoniou, G.E., Mentzelopoulou, S.E., and Glentis, G.O. Determination of transfer function of two dimensional generalised systems using the discrete Fourier transform **D** p327
Antonopoulos, C.S., Panas, S.M., and Kriezis, E.E. Transient electromagnetic shielding in a system of two coaxial cylindrical shells **A** p281
Argüello, F., Doallo, R., and Zapata, E.L. Semi-systolic architecture for fast Hartley transform: decimation in frequency and radix 2 **G** p651
Ari, N., and Blumer, W. see Blumer, W.
Armistead, C.J., Nyairo, K.O., White, I.H., and Kirkby, P.A. see Nyairo, K.O.
Armstrong, B.C., and Griffiths, H.D. CFAR detection of fluctuating targets in spatially correlated K-distributed clutter **F** p139
Armstrong, B.C., and Griffiths, H.D. Use of difference channel information for detection in monopulse radars **F** p199
Arnaud, J., and Estéban, M. see Estéban, M.
Arrillaga, J., and Villablanca, M. 24-pulse HVDC conversion **C** p57
Arrillaga, J., and Villablanca, M.E. Pulse doubling in parallel convertor configurations with interphase reactors **B** p15
Arsov, G. Triac model for computer aided analysis and design **G** p430
Arvas, E., and Yang, X. see Yang, X.
Asano, T., Fukunaga, K., Murata, H., and Izumi, M. see Fukunaga, K.
Asensio, A., Feijoó, C., and Pérez, F. see Feijoó, C.
Astbury, S., Williams, L.D., Kirby, R.P., Summerfield, M.A., Rust, D.J., and Lee, P.A. see Williams, L.D.
Åström, K.J., Hang, C.C., and Ho, W.K. see Hang, C.C.
Atadan, S. Minimum dimensional state-space formulation of linear systems **G** p590
Athamena, N., Cronin, N.J., and Tinkler, D. see Cronin, N.J.
Attikiouzel, Y., Alder, M.D., and Togneri, R. see Alder, M.D.
Attikiouzel, Y., Haig, T.D., and Alder, M. see Haig, T.D.
Auckland, D.W., and Varlow, B.R. Dependence of electrical tree inception and growth on mechanical properties **A** p51
Ayoub, A.K., Masrur, M.A., and Tielking, J.T. see Masrur, M.A.
Ayuso, A.J. Rubio, Peinado, A.M., Lopez, J.M., Sanchez, V.E., and Segura, J.C. see Peinado, A.M.

B

Bødtker, E., Jensen, B., Jacobsen, G., Christensen, B., and Skettrup, T. see Jensen, B.
Badar, A.H., Maclean, T.S.M., Ghafouri-Siraz, H., and Gazey, B.K. Bent slab ray theory for power distribution in core and cladding of bent multimode optical fibres **J** p7
Badar, A.H., and Maclean, T.S.M. Transition and pure bending losses in multimode and single-mode bent optical fibres **J** p261
Baker, C.J. K-distributed coherent sea clutter **F** p89
Baker, C.J., Hair, T., and Lee, T. see Hair, T.
Balasubramanian, R., Mohan, P., and Rao, K.S.P. New Fourier methods for generation system production costing **C** p384
Balasubramanian, R., Tripathy, S.C., and Chandramohanan Nair, P.S. see Tripathy, S.C.
Baldwin, P.J., Boswell, A.G.P., Brewster, D.C., and Allwright, J.S. Iterative calculation of ship-borne HF antenna performance **H** p151
Balestra, F., Brini, J., Benachir, M., and Ghibaudo, G. see Brini, J.
Ballantyne, J.M., Zhu, L.D., Xiong, F.K., Wang, C.M., Chen, Z.H., Hsie, Y.L., and Feak, G.A.B. see Zhu, L.D.
Baloch, A.K., and Rodriguez-Tellez, J. see Rodriguez-Tellez, J.
Bapat, V.N., Roy, B.K., and Saha, D.C. see Roy, B.K.
Bapi Raju, V., Nanda, J., Bijwe, P.R., Kothari, M.L., and Joma, Bashir M. see Nanda, J.
Bar-Lev, A., and Strum, A. see Strum, A.
Barber, W., Saul, P.H., Taylor, D.G., and Ward, T. see Saul, P.H.
Barlow, K.J. Fabrication of PMOS transistors by dopant implantation into $TiSi_2$ **G** p587
Barnes, R., and Wong, K.T. Unbalance and harmonic studies for the Channel Tunnel railway system **B** p41
Barr, D.A., and Laverty, S.J. Impulse response signature of a DCEL ZnS:Mn,Cu powder display determined by crosscorrelation **G** p160
Barrow, D.R., Howe, A.F., and Cook, N. The chemistry of electric fuse arcing **A** p83
Barry, P.J., and Williamson, A.G. Statistical model for UHF radio-wave signals within externally illuminated multistorey buildings **I** p307
Baruch, A.E., Meggitt, B.T., Boyle, W.J.O., Grattan, K.T.V., and Palmer, A.W. see Meggitt, B.T.
Bastick, M.T., Choi, S.S., Larkin, R., and Ferres, A.W. see Choi, S.S.
Basu, S.K., and Goswami, S.K. see Goswami, S.K.
Batarseh, I.E., and Lee, C.Q. High-frequency link parallel resonant convertor with fourth-order commutation network **G** p34
Bava, G.P., Maio, I., and Montrosset, I. see Maio, I.
Bawden, P.J., and Moon, T.T. see Moon, T.T.
Beattie, W.C., and Dodds, G.I. see Dodds, G.I.
Bedrosian, D.G., and Vlach, J. Comments on 'Algorithm for reducing circuit equations in computer applications' **G** p733
Behzadi, M.A., Chotai, A., and Young, P.C. see Chotai, A.
Ben-Tzvi, D., and Sandler, M. Analogue implementation of the Hough transform **G** p457
Benítez, J.G., Montaño, J.C., Ibáñez, M.C., and Ojeda, A.L. see Montaño, J.C.
Benachir, M., Brini, J., Ghibaudo, G., and Balestra, F. see Brini, J.
Benaissa, M., Dlay, S.S., and Holt, A.G.J. CMOS VLSI design of a high-speed Fermat number transform based convolver/correlator using three-input adders **G** p182

Benedetto, S., Hui, R., and Montrosset, I. see Hui, R.
Benesty, J., and Duhamel, P. Fast constant modulus adaptive algorithm F p379
Benidir, M. Simple sufficient test for stability of two-dimensional recursive digital filters G p731
Benjamin, R., Titze, W., Brennan, P.V., and Griffiths, H.D. Symmetric-pair antennas for beam steering, direction finding or isotropic-reception gain H p368
Benson, T.M., Pouladian-Kari, R., and Shapland, A.J. see Pouladian-Kari, R.
Berg, G.J., and Sharaf, T.A.M. see Sharaf, T.A.M.
Bernardin, J.P., and Lawandy, N.M. Simultaneous self-starting additive pulse mode-locking and second harmonic generation of an Nd: YAG laser using self-organised germanosilicate optical fibres J p281
Beroual, A., and Buret, F. Optical detector of electrical discharges G p620
Bershad, N., Macchi, O., and Mboup, M. see Macchi, O.
Bershad, N.J. Analysis of a first order complex recursive LMS adaptive predictor F p321
Bestaoui, Y. Design of robotic discrete minimum energy regulator D p509
Bhattacharyya, A.B., and Aggarwal, S. see Aggarwal, S.
Bhattacharyya, A.K. Effects of ground plane truncation on the impedance of a patch antenna H p560
Bhattacharyya, P., and Pal, S. see Pal, S.
Bien, Z., Hwang, D.-H., and Oh, S.-R. see Hwang, D.-H.
Bien, Z., and Kim, J.H. see Kim, J.H.
Bien, Z., and Lee, K.H. see Lee, K.H.
Biey, M., Coco, S., and Premoli, A. Maximally-flat rational approximation with multiple critical pole-pair G p244
Biglieri, E., and Liu, Y.-J. see Liu, Y.-J.
Bijwe, P.R., Nanda, J., Bapi Raju, V., Kothari, M.L., and Joma, Bashir M. see Nanda, J.
Bijwe, P.R., Nanda, J., and Puttabuddhi, K.L. Ranking of line outages in an AC–DC system causing overload and voltage problems C p207
Billingsley, J. On the design of position control systems D p331
Billinton, R., and Wenyuan, L. Hybrid approach for reliability evaluation of composite generation and transmission systems using Monte–Carlo simulation and enumeration technique C p233
Bilodeau, T.D., and Krzymien, W.A. Simulation study of trellis-coded transceivers for high-bit rate digital subscriber loops I p503
Binns, K.J., Liu, Z.J., and Vourdas, A. see Liu, Z.J.
Binns, K.J., Mellor, P.H., and Al-Taee, M.A. see Mellor, P.H.
Binns, K.J., Mellor, P.H., and Chaaban, F.B. see Mellor, P.H.
Binns, K.J., Shimmin, D.W., and Al-Aubidy, K.M. Implicit rotor-position sensing using motor windings for a self-commutating permanent-magnet drive system B p28
Binns, K.J., Turner, D.R., Shamsadeen, B.N., and Warne, D.F. see Turner, D.R.
Birbas, A.N., Brunn, B., van Rheenen, A.D., Gopinath, A., Chen, C.L., and Smith, F. Low-frequency noise in GaAs MESFETs related to backgating effects G p175
Bishop, P.J., and Ridley, B.K. see Ridley, B.K.
Black, R.J., Bures, J., and Lapierre, J. Finite-cladding fibres: HE_{12} and local-normal-mode coupling evolution J p330
Black, R.J., Lacroix, S., Gonthier, F., and Love, J.D. Tapered single-mode fibres and devices. Part 2: Experimental and theoretical quantification J p355
Black, R.J., Love, J.D., Henry, W.M., Stewart, W.J., Lacroix, S., and Gonthier, F. see Love, J.D.
Blatt, D.W.E. New method for monitoring and protection of high voltage switchyards C p228
Blood, P., Middlemast, I., Sarma, J., Shore, K.A., Kucharska, A.I., and Fletcher, E.D. see Middlemast, I.
Blumer, W., and Ari, N. NEMP-interaction with plane multilayer structures A p199
Board, K., Byrne, D.J., and Towers, M.S. see Byrne, D.J.
Board, K., Nutt, H.C., and Smith, R. see Nutt, H.C.
Bodger, P.S., and Cameron, G.R. see Cameron, G.R.
Boffey, T.B., Marshall, A.C., Green, J.R., and Hague, H. see Marshall, A.C.
Bokhari, S.A., Keer, M., and Gardiol, F.E. TM diffraction by a partly leaky halfplane H p397
Bolton, A.G., and Ledwich, G.F. see Ledwich, G.F.
Bond, L.J., Shiloh, K., and Som, A.K. see Shiloh, K.
Bond, L.J., and Clark, R. see Clark, R.
Bonek, E., Kreuzgruber, P., Scholtz, A.L., and Österreicher, J. see Kreuzgruber, P.
Boon, C.S., and Takao, K. see Takao, K.
Bordoloi, P.K., and Hazarika, D. see Hazarika, D.
Bose, T.K., Xu, Y., and Bosisio, R.G. see Xu, Y.
Bosisio, R.G., Xu, Y., and Bose, T.K. see Xu, Y.
Boswell, A.G.P., Baldwin, P.J., Brewster, D.C., and Allwright, J.S. see Baldwin, P.J.
Bottauscio, O., Crotti, G., Farina, G., and Vecchiotti, E. Analysis of distribution transformers under fault conditions for determination of transient recovery voltage C p253
Boucher, C.C., Elliott, S.J., and Nelson, P.A. Effect of errors in the plant model on the performance of algorithms for adaptive feedforward control F p313
Bouillault, F., Lemaire-Semail, B., and Razek, A. see Lemaire-Semail, B.
Bouthinon, M., Farail, F., and Roger, A. see Farail, F.
Boutlendj, M., Allen, N.L., Lightfoot, H.A., and Neville, R.B. Positive DC corona and sparkover in short and long rod-plane gaps under variable humidity conditions A p31
Boutlendj, M., and Allen, N.L. see Allen, N.L.
Boyle, W.J.O., Meggitt, B.T., Grattan, K.T.V., Baruch, A.E., and Palmer, A.W. see Meggitt, B.T.
Bradley, C., and Helszajn, J. see Helszajn, J.
Brameller, A., and Shahnawaz Ahmed, S. see Shahnawaz Ahmed, S.
Brandão, J.C. Interference effect on the performance of PSK and QAM systems I p331
Breitholtz, C., Molander, M., and Navarro-Adlemo, R. Space and time continuous lumped transmission line model G p661
Brennan, P.V. Low cost phased array antenna for land-mobile satcom applications H p131
Brennan, P.V. Technique allowing rapid frequency sweeping in aided-acquisition phase-locked loops G p205
Brennan, P.V., Benjamin, R., Titze, W., and Griffiths, H.D. see Benjamin, R.
Brewitt-Taylor, C.R., Alder, C.J., Dixon, M., Hodges, R.D., Irving, L.D., and Rees, H.D. see Alder, C.J.
Brewster, D.C., Baldwin, P.J., Boswell, A.G.P., and Allwright, J.S. see Baldwin, P.J.
Bringi, V.N., Chadrasekar, V., Meischner, P., Hubbert, J., and Golestan, Y. Polarimetric radar signatures of preciptation at S- and C-bands F p109
Brini, J., Benachir, M., Ghibaudo, G., and Balestra, F. Threshold voltage and subthreshold slope of the volume-inversion MOS transistor G p133
Brown, J.C., Allan, J., and Mellitt, B. Six-pulse three-phase rectifier bridge models for calculating closeup and remote short circuit transients on DC supplied railways B p303
Brudaru, O., and Megson, G.M. Two-dimensional systolic array for the column-by-column QD algorithm E p401
Bruder, J.A., and Saffold, J.A. Multipath effects on low-angle tracking at millimetre-wave frequencies F p172
Brunn, B., Birbas, A.N., van Rheenen, A.D., Gopinath, A., Chen, C.L., and Smith, F. see Birbas, A.N.
Bryce, A.C., Marsh, J.H., Gwilliam, R., and Glew, R.W. Impurity induced disordering in InGaAs/InGaAlAs quantum wells using implanted fluorine and boron J p87
Bryukhovetski, A.S., and Pazynin, L.A. Scalar wave scattering by a rough spere: Bourret's approximation for the coherent field of a point source H p147
Bu, W.H., and Fang, M.T.C. see Fang, M.T.C.
Buck, B.J., Warner, D.J., Pickering, K.L., Pedder, D.J., and Pike, S.J. see Warner, D.J.
Bull, D.R., and Horrocks, D.H. Primitive operator digital filters G p401
Bures, J., Black, R.J., and Lapierre, J. see Black, R.J.
Buret, F., and Beroual, A. see Beroual, A.
Burghart, J.H., and Ali, W. see Ali, W.
Burr, A.G. Block codes on a dispersive channel I p95
Butler, C.M., Courtney, C.C., Mannikko, P.D., and Silvestro, J.W. Flanged parallel-plate waveguide coupled to a conducting cylinder H p549
Buus, J., Robbins, D.J., Ragdale, C.M., and Reid, D.C.J. Transmission characteristics of fibre gratings J p155
Byrne, D.J., Towers, M.S., and Board, K. Two-dimensional off-state modelling of high-voltage semiconductor devices with floating guard rings G p109

C

Cabezas, J.C.E., and Diniz, P.S.R. see Diniz, P.S.R.
Cai, M., and Ito, M. New type of printed polygonal loop antenna H p389
Callaghan, P., Parker, E.A., and Langley, R.J. Influence of supporting dielectric layers on the transmission properties of frequency selective surfaces H p448
Cameron, G.R., and Bodger, P.S. New measures for assessing the inductive influence of multiconductor transmission lines C p358
Canali, C., Magistrali, F., Paccagnella, A., Sangalli, M., Tedesco, C., and Zanoni, E. Trap-related effects in AlGaAs/GaAs HEMTs G p104
Cannon, P.S., and Dickson, A.H. Signalling efficiency modelling and measurement of simplex block encoded MBC systems I p544
Cao, C., Van Lil, E., Van de Capelle, A., and Van 't Klooster, K. Plane-polar near-field to far-field transformation with three kinds of Fourier-Bessel eigenvalue expansions H p463
Caorsi, S., Gragnani, G.L., and Pastorino, M. Numerical solution to three-dimensional inverse scattering for dielectric reconstruction purposes H p497
Capponi, G., and Di Maio, B. Versatile strategy for CAD of multistage low-noise amplifiers H p380
Capsalis, C.N., Cottis, P.G., and Vaidis, T.C. Propagation in the presence of two coupled parallel gyroelectric cylinders J p199
Card, H.C., Schneider, C.R., and Moore, W.R Hebbian plasticity in MOS synapses F p13
Carpenter, C.J. Electromagnetic energy changes due to charges moving through constant, or zero, magnetic field A p55
Carpenter, D.C., and Hill, R.J. see Hill, R.J.
Carr, S.A., and Grimble, M.J. see Grimble, M.J.
Carter, C.E., and Choi, S.S. see Choi, S.S.
Carter, R.G., and Srivastava, V. see Srivastava, V.
Cassidy, D.T., and Peters, F.H. see Peters, F.H.
Castella, F.R., and Kuttler, J.R. Optimised array antenna nulling with phase-only control F p241
Cavaillès, J.A., Erman, M., Riglet, Ph., Jarry, Ph., Martin, B.G., Renaud, M., and Vinchant, J.F. see Erman, M.
Cecchetti, M., Pavan, P., Spiazzi, G., Zanoni, E., and Muschitiello, M. see Pavan, P.
Celenk, M., and Datari, S.R. Hypercube concurrent processor implementation of a position invariant object classifier E p73
Chaaban, F.B., Mellor, P.H., and Binns, K.J. see Mellor, P.H.
Chadrasekar, V., Bringi, V.N., Meischner, P., Hubbert, J., and Golestan, Y. see Bringi, V.N.
Chakraborty, A., Das, B.N., and Gupta, S. see Das, B.N.
Chakraborty, A., Datta, A., and Das, B.N. see Datta, A.
Chambers, J.A., and Nandi, A.K. see Nandi, A.K.
Chambers, W.G., and Dai, Z.D. Simple but effective modification to a multiplicative congruential random-number generator E p121
Chambers, W.G., and Zein, N.F. see Zein, N.F.
Chan, P.K., and Wilson, G. see Wilson, G.
Chan, R., and Siu, W.C. New parallel Hough transform for circles E p335
Chan, Y.T., Ching, P.C., and Ho, K.C. see Ching, P.C.
Chandramohanan Nair, P.S., Tripathy, S.C., and Balasubramanian, R. see Tripathy, S.C.
Chang, C.-C., and Wu, T.-C. Remote password authentication with smart cards E p165
Chang, C.-H., and Han, K.-W. Gain margins and phase margins for sampled-data control systems with adjustable parameters D p285
Chang, C.-N., Wong, Y.-C., and Chen, C.H. Hybrid quasistatic analysis for multilayer coplanar lines H p307
Chang, C.S. Application of pattern recognition techniques for online security-economy and reactive control of power systems C p1
Chang, C.Y., Hong, J.W., and Fang, Y.K. Amorphous Si/SiC phototransistors and avalanche photodiodes J p226
Chang, Chung-Ju, and Chu, Yann-Ju Optimal design parameters in capacity assignment for a broadband network I p387
Chang, J.-M., Olgac, N., and Platin, B.E. see Olgac, N.
Chang, L., and Yeh, C.-C. Resolution threshold for coherent sources using smoothed eigenstructure methods F p470
Chang, W.-J., and Chung, H.-Y. see Chung, H.-Y.
Chang, W.-T., and Lin, M.-S. Half-band filter design with odd-polynomial Chebyshev approximation G p492
Chang, Y.-C., Liu, L-C., Lee, L-M., and Wang, H-C. see Liu, L-C.
Changsheng, J. New method of robust pole assignment by output feedback D p172
Chattopadhyay, T. Electro-optic interferometers in wideband subcarrier-multiplexed optical communication J p60
Chaudhury, S., Subramanian, S., and Parthasarathy, G. Heuristic search approach to shape matching in image sequences E p97
Cheetham, B.M.G., Mellor, P.H., and Leigh, S.P. see Mellor, P.H.
Chen, B.-S., Chiou, B.-W., and Peng, S.-C. Minimum sensitivity IIR filter design using principal component approach G p474
Chen, C.-H., Hwang, C., Guo, T.-Y., and Shieh, L.-S. see Hwang, C.
Chen, C.H., Chang, C.-N., and Wong, Y.-C. see Chang, C.-N.
Chen, C.L., Birbas, A.N., Brunn, B., van Rheenen, A.D., Gopinath, A., and Smith, F. see Birbas, A.N.
Chen, C.S., and Huo, K.-S. Karhunen–Loeve method for data compression and speech synthesis I p377
Chen, C.S., and Yuan, J. see Yuan, J.
Chen, L.G., and Chen, T.H. Fault-tolerant serial-parallel multiplier E p276
Chen, M.-T., Chu, H.-Y., Huang, C.-L., and Fei, L.-W. Power-component definitions and measurements for a harmonic-polluted power circuit C p299
Chen, S.-H., and Hsieh, W.M. Fast algorithm for VQ codebook design I p357
Chen, S.-J., Tsai, C.-C., Hsiao, P.-Y., and Feng, W.-S. see Tsai, C.-C.
Chen, T.C. Towards optimum multilayer filter design J p241

Chen, T.H., Liaw, C.M., Wang, T.C., Cho, G.J., Lee, C.M., and Wang, C.T. see Liaw, C.M.
Chen, T.H., and Chen, L.G. see Chen, L.G.
Chen, W.-T., and Chi, C.-Y. see Chi, C.-Y.
Chen, X.X., and Wu, X.W. see Wu, X.W.
Chen, Yuan-Hwang, and Yu, Feng-Peng Broadband adaptive beamforming based on coherent signal subspace using spatial interpolation preprocessing **F** p489
Chen, Z.H., Zhu, L.D., Xiong, F.K., Wang, C.M., Hsie, Y.L., Feak, G.A.B., and Ballantyne, J.M. see Zhu, L.D.
Cheng, H.D., and Zhang, C.N. see Zhang, C.N.
Cheng, K.W.E., and Evans, P.D. Parallel-mode extended-period quasiresonant convertor **B** p243
Cheng, M.-H., and Huang, T.-C. Switched-capacitor pipelined logarithmic A/D and D/A convertors **G** p714
Chern, T.-L., and Wu, Y.-C. Design of integral variable structure controller and application to electrohydraulic velocity servosystems **D** p439
Chesnoy, J. Model for microwave mode-locking of a laser diode by current modulation **J** p47
Cheung, S.W. Simulation study of 8PSK and CE16PSK signals for satellite transmissions **I** p299
Cheung, S.W., and Clark, A.P. Performance of a carrier-recovery loop in a satellite modem **I** p32
Chew, W.C., Nie, Z., Liu, Q.H., and Lo, Y.T. Analysis of a probe-fed microstrip disk antenna **H** p185
Chew, W.M., and Evans, P.D. see Evans, P.D.
Chi, C.-Y., and Chen, W.-T. Recursive SMLR deconvolution algorithm for Bernoulli–Gaussian signals **F** p263
Chiang, M.L., Lu, T.C., and Kuo, J.B. Analogue adaptive neural network circuit **G** p717
Chibani, A., and Nakaoka, M. Novel PWM-based control strategy of HF link SMR with sinusoidal line current **B** p219
Ching, P.C., Chan, Y.T., and Ho, K.C. Constrained adaptation for time delay estimation with multipath propagation **F** p453
Chino, T., Matsuda, K., Adachi, H., and Shibata, J. Characteristics of photonic parallel memory in relation to fabrication process **J** p128
Chiou, B.-W., Chen, B.-S., and Peng, S.-C. see Chen, B.-S.
Chiu, J.H., and Lee, L.S. Maximum likelihood synchronisers with arbitrary prior symbol probabilities **I** p50
Cho, G.H., Chung, Y.H., and Shin, B.S. see Chung, Y.H.
Cho, G.J., Liaw, C.M., Chen, T.H., Wang, T.C., Lee, C.M., and Wang, C.T. see Liaw, C.M.
Choi, S.S., Larkin, R., Bastick, M.T., and Ferres, A.W. Effects of underexcitation limiters on operation of remote generating station **C** p560
Choi, S.S., and Carter, C.E. Transposition study and field measurements of long radial static-reactive power compensated transmission system **C** p337
Chotai, A., Young, P.C., and Behzadi, M.A. Self-adaptive design of a nonlinear temperature control system **D** p41
Chow, M.H.L., Lee, Y.S., and Wong, J.S.L. see Lee, Y.S.
Chow, M.H.L., Lee, Y.S., and Wong, J.S.L. Use of SPICE in analogue computation and simulation of systems consisting of circuit components and transfer functions **G** p282
Chow, Y.L., Yang, J.J., and Fang, D.G. see Yang, J.J.
Chow, Y.L., and Faraji-Dana, R. see Faraji-Dana, R.
Christensen, B., Jensen, B., Jacobsen, G., Bødtker, E., and Skettrup, T. see Jensen, B.
Christensen, W., Anderson, F., Fullerton, L., and Kortegaard, B. see Anderson, F.
Christopoulos, C., and Hui, S.Y.R. see Hui, S.Y.R.
Chu, H.-Y., Chen, M.-T., Huang, C.-L., and Fei, L.-W. see Chen, M.-T.
Chu, Yann-Ju, and Chang, Chung-Ju see Chang, Chung-Ju
Chung, H.-Y., and Chang, W.-J. Constrained variance design for bilinear stochastic continuous systems **D** p145
Chung, Y.H., Shin, B.S., and Cho, G.H. Bilateral series resonant inverter for high frequency link UPS **B** p159
Chung, Y.M., Lee, C.W., and Lee, S.U. see Lee, C.W.
Ciminiera, L., Valenzano, A., and Montuschi, P. see Valenzano, A.
Ciric, I.R., Hamid, A.-K., and Hamid, M. see Hamid, A.-K.
Clark, A.P., and Cheung, S.W. see Cheung, S.W.
Clark, A.R., and Fourie, A.P.C. An improvement to the transmission line model of the folded dipole **H** p577
Clark, R., and Bond, L.J. Response of horizontal axis eddy current coils to layered media: a theoretical and experimental study **A** p248
Clarke, D.W., and Robinson, B.D. see Robinson, B.D.
Clarke, D.W., and Scattolini, R. Constrained receding-horizon predictive control **D** p347
Clarke, T.J.W., Prager, R.W., and Fallside, F. The modified Kanerva model: theory and results for real-time word recognition **F** p25
Clarricoats, P.J.B., and Zhou, H. Design and performance of a reconfigurable mesh reflector antenna. Part 1: Antenna design **H** p485
Clarricoats, P.J.B., and Zhou, H. Design and performance of a reconfigurable mesh reflector antenna. Part 2: Antenna performance **H** p493
Cochrane, P., Deslandes, J.E., and Jones, E.V. see Deslandes, J.E.
Coco, S., Biey, M., and Premoli, A. see Biey, M.
Cofrancesco, P., Cristoforetti, A., and Scattolini, R. Petri nets based approach to software development for real-time control **D** p474
Connolly, M.E., Rice, R.E., Grady, W.M., Lesso, W.G., and Noyola, A.H. see Rice, R.E.
Constantinides, A.G., Nandi, A.K., Aburdene, M.F., and Dologlou, I. see Nandi, A.K.
Conte, E., Longo, M., Lops, M., and Ullo, S.L. Radar detection of signals with unknown parameters in K-distributed clutter **F** p131
Conte, E., Longo, M., and Lops, M. Modelling and simulation of non-Rayleigh radar clutter **F** p121
Conti, M., and Turchetti, C. see Turchetti, C.
Cook, N., Barrow, D.R., and Howe, A.F. see Barrow, D.R.
Cooper, J.F., Pitman, K.C., Lindley, M.W., and Simkin, D. see Pitman, K.C.
Corlett, B.J., Lucas, J., and Smith, J.S. Sensors for narrow-gap welding **A** p213
Cornick, K.J., and Tleis, A.N.D. Computer simulation of three-phase prestriking transients in cable-connected motor systems **B** p105
Corsi, F., and Morandi, C. Inductive fault analysis revisited **G** p253
Cory, H., and Rosenhouse, I. Electromagnetic wave propagation along a chiral slab **H** p51
Cosgrove, S.J., and Musgrave, G. Test generation within an expert system environment **E** p36
Cosmas, J.P., and Hibberd, R. Geometrical testing of three-dimensional objects with the aid of pattern recognition **E** p250
Cottis, P.G. Propagation in cylindrical guides with gyroelectric core and cladding **J** p383
Cottis, P.G., Capsalis, C.N., and Vaidis, T.C. see Capsalis, C.N.
Courtney, C.C., Butler, C.M., Mannikko, P.D., and Silvestro, J.W. see Butler, C.M.
Cowan, C.F.N., and Green, A.D.P. see Green, A.D.P.
Craig, K.H., and Levy, M.F. Parabolic equation modelling of the effects of multipath and ducting on radar systems **F** p153
Cristoforetti, A., Cofrancesco, P., and Scattolini, R. see Cofrancesco, P.
Crofts, M., and Jervis, B.W. see Jervis, B.W.
Cronin, N.J., Athamena, N., and Tinkler, D. Design of millimetre wave grooved targets **F** p576
Crotti, G., Bottauscio, O., Farina, G., and Vecchiotti, E. see Bottauscio, O.
Crozier, S.N., Falconer, D.D., and Mahmoud, S.A. Least sum of squared errors (LSSE) channel estimation **F** p371
Cullen, P.J., Fannin, P.C., Molina, A., and Swords, S.S. see Fannin, P.C.
Cunha, S.H.F., Leite da Silva, A.M., and Melo, A.C.G. see Leite da Silva, A.M.
Cuperman, V., and Pettigrew, R. Robust low-complexity backward adaptive pitch predictor for low-delay speech coding **I** p338
Czarnecki, K., Malag, A., and Fronc, K. see Malag, A.

D

Da silva, L.C., and Ghosh, S. Analysis of rectangular corrugated structures **H** p335
Dai, Z.D., and Chambers, W.G. see Chambers, W.G.
Dana, S.K., and Patranabis, D. Single shunt fault diagnosis in ladder structures with a new series of numbers **G** p38
Daruvala, D.J., Johns, A.T., Lai, L.L., and El-Hami, M. see Johns, A.T.
Das, B.N., Chakraborty, A., and Gupta, S. Analysis of waveguide-fed thick radiating rectangular windows in a ground plane **H** p142
Das, B.N., Datta, A., and Chakraborty, A. see Datta, A.
Das, D., Kothari, M.L., Kothari, D.P., and Nanda, J. Variable structure control strategy to automatic generation control of interconnected reheat thermal system **D** p579
Das, B.N., and Somasekhar Rao, P.V.D., Analysis of a junction between rectangular and circular waveguides with collinear axes **H** p265
Dasgupta, P., and Abdul Mottalib, M. see Abdul Mottalib, M.
Datari, S.R., and Celenk, M. see Celenk, M.
Datta, A., Das, B.N., and Chakraborty, A. Analysis of a variable height metallic strip in a rectangular waveguide **H** p386
Datta, D., and Gangopadhyay, R. Performance analysis of the delay and exclusive-OR type clock recovery circuit in an APD-based optical receiver **J** p21
Datta, K.B., and Sen, S. see Sen, S.
Davis, E.W., and Al-Saqabi, K.H. see Al-Saqabi, K.H.
Davis, J.H., Morris, D., and Mayer, C.E. see Morris, D.
Davis, L.E., Gibson, A.A.P., Sloan, R., and Paul, D.K. see Gibson, A.A.P.
Davis, L.E., and Smith, P.A. Q of a coaxial cavity with a superconducting inner conductor **A** p313
Davis, P.F., and Hooper, A.W. Improvement of greenhouse heating control **D** p249
Davison, A.S., and White, I.H. Spectral analysis of diode lasers by measurement of polarisation rotation in a birefringent fibre **J** p148
Dawson, E., Sridharan, S., and Goldburg, B. see Sridharan, S.
De araújo, C.S., and de Castro, J.C. Application of power system stabilisers in a plant with identical units **C** p11
De castro, J.C., and de Araújo, C.S. see De araújo, C.S.
De souza, C.E., and Xie, L. see Xie, L.
DeMassa, T.A., and Sanchez, J.J. see Sanchez, J.J.
de Toledo, A.F., and Turkmani, A.M.D. see Turkmani, A.M.D.
de Villiers, M.C., and Malherbe, J.A.G. Isolation of the travelling wave contribution to the backscatter pattern of conducting cylinders **H** p417
de la Salle, S., Leithead, W.E., and Reardon, D. see Leithead, W.E.
Debany, W.H., Hartmann, C.R.P., and Snethen, T.J. Algorithm for generating optimal tests for exclusive-OR networks **E** p93
Decoster, D., Harari, J., Vilcot, J.P., Kramer, B., Oguey, C., Salsac, P., and Ripoche, G. see Harari, J.
Deeb, N.I., and Shahidehpour, S.M. Decomposition approach for minimising real power losses in power systems **C** p27
Deeley, E.M., and Kontopoulous, P. Strip speed measurement using distributed infra-red detectors **D** p395
Deen, M.J., and Yan, Z.X. see Yan, Z.X.
Deergha Rao, K., and Reddy, D.C. New method of designing adaptive nonlinear filters **F** p513
Demery, D.A., Parsons, J.D., and Turkmani, A.M.D. see Parsons, J.D.
Demery, D.A., Turkmani, A.M.D., and Parsons, J.D. see Turkmani, A.M.D.
Demidenko, S.N., Levin, E.M., and Lever, K.V. Concurrent self-checking for microprogrammed control units: an analytical survey **E** p377
Demidenko, S.N., Levin, E.M., and Lever, K.V. New approach to synthesis of self-checking microprogrammed control units with specified fault-detection probabilities **E** p389
Deng, Z.-L., and Huang, X.-R. Multivariable decoupling pole assignment self-tuning feedforward controller **D** p85
Denyer, P.B., and Greer, N.P.J. see Greer, N.P.J.
Deslandes, J.E., Cochrane, P., and Jones, E.V. Analysis of the error extension mechanisms within the European plesiochronous digital hierarchy **I** p280
Di Massimo, C., Willis, M.J., Montague, G.A., Tham, M.T., and Morris, A.J. see Willis, M.J.
Di, X., Michalski, K.A., and Glisson, A.W. see Michalski, K.A.
Di Maio, B., and Capponi, G. see Capponi, G.
Dias, V.F., and Franca, J.E. see Franca, J.E.
Dickinson, E.J., Kamwa, I., and Viarouge, P. see Kamwa, I.
Dickson, A.H., and Cannon, P.S. see Cannon, P.S.
Dimolitsas, S. Subjective quality quantification of digital voice communication systems **I** p585
Diniz, P.S.R., and Cabezas, J.C.E. Design of FIR equalisers by sharpening identical subfilters **G** p413
Dixon, M., Alder, C.J., Brewitt-Taylor, C.R., Hodges, R.D., Irving, L.D., and Rees, H.D. see Alder, C.J.
Dlay, S.S., Benaissa, M., and Holt, A.G.J. see Benaissa, M.
Doallo, R., Argüello, F., and Zapata, E.L. see Argüello, F.
Doan, K., and Wong, K.P. see Wong, K.P.
Dodds, G.I., and Beattie, W.C. Effects of abnormal operating conditions on electrical utility planning **C** p113
Dologlou, I., Nandi, A.K., Aburdene, M.F., and Constantinides, A.G. see Nandi, A.K.
Domański, M. Low-sensitivity structure for 1-D and 2-D digital FIR filters **G** p229
Domaradzki, P., Henderson, I.A., McGhee, J., and Szaniawski, W. see Henderson, I.A.
Dong, Y., and Pota, H.R. Fast transient stability assessment using large step-size numerical integration **C** p377
Dou, W.-B., Rong, Y., and Li, S.-F. see Rong, Y.
Douce, J.L., Zhu, Q.M., and Warwick, K. see Zhu, Q.M.
Douligeris, C., and Mazumdar, R. Efficient flow control in a multiclass telecommunications environment **I** p494
Drury, W., Al Zahawi, B.A.T., and Jones, B.L. see Al Zahawi, B.A.T.
Du, W., and Kirlin, R.L. see Kirlin, R.L.
Duh, W.-J., Wu, J.-L., and Hsu, S.-H. see Wu, J.-L.
Duhamel, P., and Benesty, J. see Benesty, J.
Dujardin, B., Lasri, T., and Leroy, Y. see Lasri, T.
Dunnett, R.M., Rossiter, J.A., and Kouvaritakis, B. see Rossiter, J.A.
Dupuy, J., Rickard, D.A., and Waters, R.T. see

Rickard, D.A.
Durrant-Whyte, H.F., and Rao, B.S. see Rao, B.S.
Dutta, H.N., Narayana Rao, D., Krishna Reddy, K., Ravi, K.S., Rao, S.V.B., Kesava Murthy, M.J., Sarkar, S.K., and Reddy, B.M. see Narayana Rao, D.
Dutta Roy, S.C., Reddy, M.R.R., and Kumar, B. see Reddy, M.R.R.
Dwivedi, R., Sharma, A.K., and Srivastava, S.K. see Sharma, A.K.

E

Eichenberger, C., and Guggenbühl, W. Charge injection of analogue CMOS switches **G** p155
Eichhorn, K.-Fr., and Łobos, T. Recursive real-time calculation of basic waveforms of signals **C** p469
El-Hami, M., Johns, A.T., Lai, L.L., and Daruvala, D.J. see Johns, A.T.
El-Hawary, F., and Mbamalu, G.A.N. Underwater target tracking via the IRWLS filtering approach **F** p459
El-Marsafawy, M. Application of series-capacitor and shunt-reactor compensation to an existing practical AC transmission line **C** p330
El-Masry, E.I., and Vallee, R.E. see Vallee, R.E.
Elayyan, H.S.B., Haddad, A., and German, D.M. see Haddad, A.
Eliades, D.E. Path integral analysis of paralaxial radiowave propagation over a nonlevel plateau **H** p521
Elliott, S.J., Boucher, C.C., and Nelson, P.A. see Boucher, C.C.
Elsherbeni, A.Z., Parrikar, R.P., and Kishk, A.A. see Parrikar, R.P.
Engberg, J., and Larsen, T. Extended definitions for noise temperatures of linear noisy one- and two-ports **H** p86
Erman, M., Riglet, Ph., Jarry, Ph., Martin, B.G., Renaud,, M., Vinchant, J.F., and Cavaillès, J.A. Optical circuits and integrated detectors **J** p101
Ernst, D. LMS adaptive algorithms for joint forward and decision feedback equalisation **F** p520
Estéban, M., and Arnaud, J. Evaluation of semiconductor optical parameters for laser diodes **J** p79
Eswaran, C., Venkateswarlu, T., and Antoniou, A. see Venkateswarlu, T.
Evans, P.D., and Cheng, K.W.E. see Cheng, K.W.E.
Evans, P.D., and Chew, W.M. Reduction of proximity losses in coupled inductors **B** p51

F

Fa-Long, Luo, and Jun, Yang Bound on inputs to neurons of Hopfield continuous-variable neural network **G** p671
Fabre, A. Analysis of analogue circuit implementations from translinear blocks **G** p483
Fahmy, M.M., and Hussein, A.O. see Hussein, A.O.
Fairhurst, G. Operation of HDLC ABM in harsh error environments: a robust extension **I** p291
Falconer, D., Yamazaki, K., and Aly, S. see Yamazaki, K.
Falconer, D.D., Crozier, S.N., and Mahmoud, S.A. see Crozier, S.N.
Falls, M.J., Fionda, E., and Westwater, E.R. see Fionda, E.
Fallside, F., Clarke, T.J.W., and Prager, R.W. see Clarke, T.J.W.
Fang, D.-G., Wu, K.-L., Spenuk, M., and Litva, J. see Wu, K.-L.
Fang, D.G., Yang, J.J., and Chow, Y.L. see Yang, J.J.
Fang, M.T.C., Taylor, S., Jones, G.R., and Shimmin, D.S. see Taylor, S.
Fang, M.T.C., and Bu, W.H. Investigation of ablation-dominated AC nozzle arcs **A** p71
Fang, S.J., Lee, C.Q., and Siri, K. see Lee, C.Q.
Fang, Y.K., Chang, C.Y., and Hong, J.W. see Chang, C.Y.
Fannin, P.C., Molina, A., Swords, S.S., and Cullen, P.J. Digital signal processing techniques applied to mobile radio channel sounding **F** p502
Fannin, P.C., and Ó Séaghdha, D.D. see Ó Séaghdha, D.D.
Farail, F., Roger, A., and Bouthinon, M. Finite element method for electromagnetic scattering in a lossy medium **H** p201
Faraji-Dana, R., and Chow, Y.L. AC resistance of two coupled strip conductors **H** p37
Farina, G., Bottauscio, O., Crotti, G., and Vecchiotti, E. see Bottauscio, O.
Farish, O., and Al-Bawy, I. see Al-Bawy, I.
Farison, J.B., and Kolla, S.R. Relationship of singular value stability robustness bounds to spectral radius for discrete systems with application to digital filters **G** p5
Fattouche, M., Jorgenson, M.B., and Nichols, S.T. see Jorgenson, M.B.
Feak, G.A.B., Zhu, L.D., Xiong, F.K., Wang, C.M., Chen, Z.H., Hsie, Y.L., and Ballantyne, J.M. see Zhu, L.D.
Feeney, M.T., and Parsons, J.D. Cross-correlation between 900 MHz signals received on vertically separated antennas in small-cell mobile radio systems **I** p81
Feher, K., Makrakis, D., and Yongaçoğlu, A. see Makrakis, D.
Fei, L.-W., Chen, M.-T., Chu, H.-Y., and Huang, C.-L. see Chen, M.-T.
Feijoó, C., Asensio, A., and Pérez, F. New practical method for measurement error determination in radar systems under real traffic conditions **F** p525
Feng, C.-B., and Zheng, W.-X. Robust identification of stochastic linear systems with correlated noise **D** p484
Feng, W.-S., Tsai, C.-C., Chen, S.-J., and Hsiao, P.-Y. see Tsai, C.-C.
Feng, W.L., and Ruan, Y.Z. see Ruan, Y.Z.
Feng, Y.S., and Nasrabadi, N.M. Dynamic address-vector quantisation of RGB colour images **I** p225
Fernandes, C.F., and Santos, H.A. Field impoverishment modes in a diode with an $Al_xGa_{1-x}As/GaAs$ heterojunction: a simulation analysis **G** p91
Fernandez del Busto, R., Wellstead, P.E., and Zarrop, M.B. Parameter transient tracking for recursive estimation **D** p68
Ferreira da Rocha, J.R., and Pires, J.J.O. see Pires, J.J.O.
Ferres, A.W., Choi, S.S., Larkin, R., and Bastick, M.T. see Choi, S.S.
Fessas, P., and Mansour, M. Single-channel controllability of interconnected systems **D** p207
Findler, N.V., and Lo, R. Distributed artificial intelligence approach to air traffic control **D** p515
Fionda, E., Falls, M.J., and Westwater, E.R. Attenuation statistics at 20.6, 31.65 and 52.85 GHz derived from emission measurements by ground-based microwave radiometers **H** p46
Fitzgerald, W.J., and Lasenby, J. see Lasenby, J.
Fletcher, E.D., Middlemast, I., Sarma, J., Shore, K.A., Kucharska, A.I., and Blood, P. see Middlemast, I.
Flockton, S.J. Gradient-based adaptive algorithms for systems with external feedback paths **F** p308
Fossi, M., Giuli, D., and Gherardelli, M. see Giuli, D.
Foster, S., Tattersall, G.D., and Johnston, R.D. see Tattersall, G.D.
Fourie, A.P.C., and Clark, A.R. see Clark, A.R.
Fox, B., and Radi, K.M. see Radi, K.M.
Fralich, R., Wu, K.-L., Litva, J., and Wu, C. see Wu, K.-L.
Franca, J.E., and Dias, V.F. Systematic method for the design of multiamplifier switched-capacitor FIR decimator circuits **G** p307
Franceschetti, G., Alberti, G., Pascazio, V., and Schirinzi, G. see Alberti, G.
Franceschetti, G., Pascazio, V., and Schirinzi, G. Processing of signum coded SAR signal: theory and experiments **F** p192
Frigyes, I. Synchronisation of random bit sequences: application to hitless switching **I** p401
Fronc, K., Malag, A., and Czarnecki, K. see Malag, A.
Fuchs, U., Herdeg, W.F., and Wendel, H. see Herdeg, W.F.
Fukunaga, K., Murata, H., Asano, T., and Izumi, M. Image registration using an image graph and its application to map matching **E** p79
Fukushima, T., and Funabiki, S. see Funabiki, S.
Fullerton, L., Anderson, F., Christensen, W., and Kortegaard, B. see Anderson, F.
Funabiki, S., and Fukushima, T. Current commands for high-efficiency torque control of DC shunt motor **B** p227
Fung, A., and McLane, P. Phase jitter sensitivity of rotationally invariant 8 and 16 point trellis codes **I** p247
Fusco, V.F. Symbolic transfer functions for MESFET small-signal parameter extraction **G** p217
Fyath, R.S., and O'Reilly, J.J. Accurate assessment of sensitivity and optimum threshold for semiconductor laser preamplified optical receivers **J** p221

G

Gameiro, A.M.S., and Rocha, J.R.F. da Sub-optimum bit synchronisers for high-speed bandlimited waveforms **I** p176
Ganesh, R., and Pahlavan, K. Statistical modelling and computer simulation of indoor radio channel **I** p153
Gangopadhyay, R., and Datta, D. see Datta, D.
Gardiol, F.E., Bokhari, S.A., and Keer, M. see Bokhari, S.A.
Gavric', M. Method of equal probability overvoltages for calculating risk of failure of power transmission lines **C** p19
Gazey, B.K., Badar, A.H., Maclean, T.S.M., and Ghafouri-Siraz, H. see Badar, A.H.
Gelenbe, E., and Stafylopatis, A. see Stafylopatis, A.
Genesio, R., and Tesi, A. Chaos prediction in nonlinear feedback systems **D** p313
Gerhard, R., Krautschneider, W.H., and Kohl, M. see Krautschneider, W.H.
German, D.M., Haddad, A., and Elayyan, H.S.B. see Haddad, A.
Ghafouri-Siraz, H., Badar, A.H., Maclean, T.S.M., and Gazey, B.K. see Badar, A.H.
Gherardelli, M., Giuli, D., and Fossi, M. see Giuli, D.
Ghibaudo, G., Brini, J., Benachir, M., and Balestra, F. see Brini, J.
Ghods, A.H., and Rahmat-Samii, Y. Electromagnetic properties of an insulated dipole antenna immersed in an arbitrary medium **H** p497
Ghosh, S., and da Silva, L.C. see Da silva, L.C.
Gibson, A.A.P., Sloan, R., Davis, L.E., and Paul, D.K. Double valued phase constants in gyrotropic waveguides **H** p258
Gibson, G., and McLaughlin, S. Adaptive filter theory — not just an LMS **F** p293
Gibson, J.K. Discrete logarithm hash function that is collision free and one way **E** p407
Gieras, J.F. Analysis of multilayer rotor induction motor with higher space harmonics taken into account **B** p59
Giuli, D., Fossi, M., and Gherardelli, M. Polarisation behaviour of ground clutter during dwell time **F** p211
Glentis, G.O., Antoniou, G.E., and Mentzelopoulou, S.E. see Antoniou, G.E.
Glew, R.W., Bryce, A.C., Marsh, J.H., and Gwilliam, R. see Bryce, A.C.
Glisson, A.W., Michalski, K.A., and Di, X. see Michalski, K.A.
Göksu, Ç., and Güneş, F. High frequency surface currents induced on a soft-hard cylindrical strip **A** p113
Gobovic, D., and Zaghloul, M.E. see Zaghloul, M.E.
Goldberg, M., and Panchanathan, S. see Panchanathan, S.
Goldburg, B., Sridharan, S., and Dawson, E. see Sridharan, S.
Goldman, H. Mathematical analysis of the three-ray dispersive fading channel model **I** p87
Gole, A.M., and Sood, V.K. see Sood, V.K.
Golestan, Y., Bringi, V.N., Chadrasekar, V., Meischner, P., and Hubbert, J. see Bringi, V.N.
Gong, J., Jayasundere, N.D., MacLean, T.S.M., and Wu, Z. Scattering by a perfectly conducting finite size vertical rectangular plate **H** p137
Gonthier, F., Black, R.J., Lacroix, S., and Love, J.D. see Black, R.J.
Gonthier, F., Love, J.D., Henry, W.M., Stewart, W.J., Black, R.J., and Lacroix, S. see Love, J.D.
Gopinath, A., Birbas, A.N., Brunn, B., van Rheenen, A.D., Chen, C.L., and Smith, F. see Birbas, A.N.
Goswami, S.K., and Basu, S.K. Direct solution of distribution systems **C** p78
Grady, W.M., Rice, R.E., Lesso, W.G., Noyola, A.H., and Connolly, M.E. see Rice, R.E.
Grady, W.M., and Preston, E.G. see Preston, E.G.
Gragnani, G.L., Caorsi, S., and Pastorino, M. see Caorsi, S.
Grattan, K.T.V., Meggitt, B.T., Boyle, W.J.O., Baruch, A.E., and Palmer, A.W. see Meggitt, B.T.
Green, A.D.P., and Cowan, C.F.N. Editorial: Promoting realism in neural network research **F** p1
Green, A.D.P., and Noakes, P.D. Solving the interconnection problem with a linked assembly of neural networks **F** p63
Green, D.H., and Amarasinghe, S.K. Families of sequences and arrays with good periodic correlation properties **E** p260
Green, J.R., Marshall, A.C., Boffey, T.B., and Hague, H. see Marshall, A.C.
Green, T.C., and Williams, B.W. see Williams, B.W.
Greer, N.P.J., and Denyer, P.B. New folded cascode transconductor for bandpass ladder filters **G** p551
Griffiths, H.D., Benjamin, R., Titze, W., and Brennan, P.V. see Benjamin, R.
Griffiths, H.D., and Armstrong, B.C. see Armstrong, B.C.
Grimble, M.J., and Carr, S.A. Observations-weighted optimal control of a class of nonlinear systems **D** p160
Grubb, M.J. Value of variable sources on power systems **C** p149
Güneş, F., and Göksu, Ç. see Göksu, Ç.
Guggenbühl, W., and Eichenberger, C. see Eichenberger, C.
Gundrum, H., Rizkalla, M.E., and Michel, H. see Rizkalla, M.E.
Guo, T.-Y., Hwang, C., Shieh, L.-S., and Chen, C.-H. see Hwang, C.
Guosui, Liu, Xiangquan, Shi, Jimhui, Lu, Guoyu, Yang, and Yaoliang, Song Design of noise FM-CW radar and its implementation **F** p420
Guoyu, Yang, Guosui, Liu, Xiangquan, Shi, Jimhui, Lu, and Yaoliang, Song see Guosui, Liu
Gupta, M.M., Minamide, N., and Nikiforuk, P.N. see Minamide, N.
Gupta, S., Das, B.N., and Chakraborty, A. see Das, B.N.
Guu, J.-A., and Wei, C.-H. Tracking technique for manoeuvring target with correlated measurement noises and unknown parameters **F** p278
Gwilliam, R., Bryce, A.C., Marsh, J.H., and Glew, R.W. see Bryce, A.C.
Gyurkovics, É. Linear feedback approach to the

stabilisation of uncertain discrete systems **D** p507

H

Hänninen, J., Oksanen, M.I., and Tretyakov, S.A. see Oksanen, M.I.
Habiballah, I.O., and Quintana, V.H. Fast-decoupled rectangular co-ordinate state estimation with efficient data structure management **C** p462
Haccoun, D., and Kallel, S. Application of multiple path sequential decoding for intersymbol interference reduction problem **I** p21
Haddad, A., Elayyan, H.S.B., and German, D.M. ZnO surge arrester elements with mixed direct and 50 Hz voltages **A** p265
Hague, H., Marshall, A.C., Boffey, T.B., and Green, J.R. see Marshall, A.C.
Haig, T.D., Attikiouzel, Y., and Alder, M. Border marriage: matching of contours of serial sections **I** p371
Haigh, D.G., Psychalinos, C., and Haritantis, I. see Psychalinos, C.
Hair, T., Lee, T., and Baker, C.J. Statistical properties of multifrequency high-range-resolution sea reflections **F** p75
Hale, W.B., Sundaresan, H., Henning, I.D., and Mellis, J. Vector modulation of split-contact DFB lasers **J** p109
Hall, P.S., and Vetterlein, S.J. see Vetterlein, S.J.
Halpern, M.E. Optimal tracking with previewed commands **D** p237
Hamada, S., Ogino, Y., and Nakaoka, M. Saturable reactor assisted soft-switching full-bridge DC–DC power convertors **B** p95
Hamdan, Abdul-Razak, Salam, Md-Sayeed, and Nor, Khalid Mohamed see Salam, Md-Sayeed
Hamid, A.-K., Ciric, I.R., and Hamid, M. Iterative solution of the scattering by an arbitrary configuration of conducting or dielectric spheres **H** p565
Hamid, M., Hamid, A.-K., and Ciric, I.R. see Hamid, A.-K.
Hamilton, D.K. Performance of transfer resistance amplifiers with capacitive sources in optical applications **G** p45
Hamilton, D.K. Use of inductive compensation for improving bandwidth and noise performance of high frequency optical receiver preamplifiers **G** p52
Han, K.-W., and Chang, C.-H. see Chang, C.-H.
Hang, C.C., Lim, K.W., and Ho, W.K. Generalised minimum-variance stochastic self-tuning controller with pole restriction **D** p25
Hang, C.C., Åström, K.J., and Ho, W.K. Refinements of the Ziegler–Nichols tuning formula **D** p111
Hann, R.A., and Webb, P.W. see Webb, P.W.
Hansen, S.I., Marsh, J.H., and Roberts, J.S. Polarisation dependence of refractive index of MQW waveguides **J** p309
Hansen, V., and Janhsen, A. see Janhsen, A.
Hanzo, L., Webb, W.T., and Steele, R. see Webb, W.T.
Haque, M.H. Identification of coherent generators for power system dynamic equivalents using unstable equilibrium point **C** p546
Harari, J., Decoster, D., Vilcot, J.P., Kramer, B., Oguey, C., Salsac, P., and Ripoche, G. Numerical simulation of avalanche photodiodes with guard ring **J** p211
Hari, L., Kothari, M.L., and Nanda, J. Optimum selection of speed regulation parameters for automatic generation control in discrete mode considering generation rate constraints **C** p401
Harid, N., and Waters, R.T. Statistical study of impulse corona inception parameters on line conductors **A** p161
Haritantis, I., Psychalinos, C., and Haigh, D.G. see Psychalinos, C.
Harrington, R.F., Huang, Y., Yang, N., and Lin, S. see Huang, Y.
Harrison, I., Wilkin, D.J., and Woolfson, M.S. see Wilkin, D.J.
Harrison, P.G. On nonuniform packet switched delta networks and the hot-spot effect **E** p123
Hartmann, C.R.P., Debany, W.H., and Snethen, T.J. see Debany, W.H.
Hasan, P. Performance analysis of phase-locked loops in the frequency search mode of operation **G** p418
Hasnain, S.B., and Linkens, D.A. see Linkens, D.A.
Hassan, M.A. Numerical modelling technique for the radiation of wire antennas near conducting surfaces **H** p225
Hawkes, H.W. Generation and properties of synthetic aperture polar diagrams for use in DF systems **F** p229
Hawkes, H.W. Study of adjacent and co-channel FM interference reduction **I** p319
Hawley, R. 33rd Hunter Memorial Lecture: The challenge to UK power engineers (Lecture) **C** p173
Hayashi, H., Yano, H., Aga, K., Kamei, H., and Sasaki, G. Giga-bit rate receiver OEICs grown by OMVPE for long-wavelength optical communications **J** p164
Hayat, L., Naqvi, A., and Sandler, M.B. Parallel implementation of a fast thinning algorithm using image compression **I** p615
Hayes-Gill, B.R., Ait-Boudaoud, D., and Ibrahim, M.K. see Ait-Boudaoud, D.
Haykin, S., and Nohara, T.J. see Nohara, T.J.
Hazarika, D., and Bordoloi, P.K. Modified loss coefficients in the determination of optimum generation scheduling **C** p166
Hedrich, H., Lang, H., Wolf, H.D., Korte, L., Hoyler, C., and Thanner, C. see Lang, H.
Helaly, A., Sebak, A., and Shafai, L. Scattering by a buried conducting object of general shape at low frequencies **H** p213
Helszajn, J., and Bradley, C. Experimental characterisation of a reciprocal microstrip 3-port junction **H** p91
Henderson, I.A., McGhee, J., Szaniawski, W., and Domaradzki, P. Incorporating high reliability into the design of microprocessor-based instrumentation **A** p105
Henderson, R.K., Ping, Li, and Sewell, J.I Canonical design of integrated ladder filters **G** p222
Henderson, R.K., Ping, Li, and Sewell, J.I. Extended Remez algorithms for filter amplitude and group delay approximation **G** p289
Henning, I.D., Hale, W.B., Sundaresan, H., and Mellis, J. see Hale, W.B.
Henry, W.M., Love, J.D., Stewart, W.J., Black, R.J., Lacroix, S., and Gonthier, F. see Love, J.D.
Herdeg, W.F., Wendel, H., and Fuchs, U. Investigation of edge scattering by high-resolution polarisation diversity radar imaging **F** p400
Herscovici, N., and Kastner, R. see Kastner, R.
Hetherington, G., Hoyle, R., and Priest, A. see Hoyle, R.
Hewett, N.P., Skrimshire, C.P., Learmouth, M.D., and Reid, I. see Skrimshire, C.P.
Heyker, H.C., Schemmann, M.F.C., Kwaspen, J.J.M., and van de Roer, Th.G. see Schemmann, M.F.C.
Hibberd, R., and Cosmas, J.P. see Cosmas, J.P.
Hicks, P.J., Marriott, A.P., and Tsalides, Ph. see Marriott, A.P.
Hilgers, C.J., and Poelman, A.J. see Poelman, A.J.
Hill, R.J., and Carpenter, D.C. Determination of rail internal impedance for electric railway traction system simulation **B** p311
Hirose, K., and Nakano, H. Dual-spiral slot antennas **H** p32
Ho, C.-S. Development of a blackboard shell with context blackboard-based control loop **E** p1
Ho, K.C., Ching, P.C., and Chan, Y.T. see Ching, P.C.
Ho, S.C., Hong, C.G., and Hwang, G.J. see Hong, C.G.
Ho, W.K., Hang, C.C., and Lim, K.W. see Hang, C.C.
Ho, W.K., Hang, C.C., and Åström, K.J. see Hang, C.C.
Hodges, R.D., Alder, C.J., Brewitt-Taylor, C.R., Dixon, M., Irving, L.D., and Rees, H.D. see Alder, C.J.
Holt, A.G.J., Benaissa, M., and Dlay, S.S. see Benaissa, M.
Honary, B., and Zolghadr, F. see Zolghadr, F.
Hong, C.-G., and Hwang, G.-J. Nonlinear complex finite-element analysis of squirrel cage induction motor performance **B** p277
Hong, C.G., Ho, S.C., and Hwang, G.J. Characteristics of a squirrel cage induction motor **B** p115
Hong, J.W., Chang, C.Y., and Fang, Y.K. see Chang, C.Y.
Honma, T., Nakano, H., Soga, H., and Yamauchi, J. see Nakano, H.
Hooper, A.W., and Davis, P.F. see Davis, P.F.
Hope, G.S., Roy, S., and Malik, O.P. see Roy, S.
Hornung, V., Remiens, D., Rose, B., and Robein, D. see Remiens, D.
Horrocks, D.H., and Bull, D.R. see Bull, D.R.
Howe, A.F., Barrow, D.R., and Cook, N. see Barrow, D.R.
Hoyle, R., Priest, A., and Hetherington, G. Alternative control strategies for rule-based transistor placement in CMOS VLSI design **G** 137
Hoyler, C., Lang, H., Wolf, H.D., Korte, L., Hedrich, H., and Thanner, C. see Lang, H.
Hsiao, P.-Y., Tsai, C.-C., Chen, S.-J., and Feng, W.-S. see Tsai, C.-C.
Hsiao, P.-Y., and Tsai, C.-C. Expert compactor: a knowledge-based application in VLSI layout compaction **E** p13
Hsie, Y.L., Zhu, L.D., Xiong, F.K., Wang, C.M., Chen, Z.H., Feak, G.A.B., and Ballantyne, J.M. see Zhu, L.D.
Hsieh, W.M., and Chen, S.-H. see Chen, S.-H.
Hsu, S.-H., Wu, J.-L., and Duh, W.-J. see Wu, J.-L.
Hsu, Y.-Y., and Yang, C.-C. Design of artificial neural networks for short-term load forecasting. Part I: Self-organising feature maps for day type identification **C** p407
Hsu, Y.-Y., and Yang, C.-C. Design of artificial neural networks for short-term load forecasting. Part II: Multilayer feedforward networks for peak load and valley load forecasting **C** p414
Hu, D., and Makin, B. Study of a five-electrode quadrupole levitation system. Part I: Theoretical aspects **A** p320
Hu, D., and Makin, B. Study of a five-electrode quadrupole levitation system. Part II: Experimental results **A** p329
Huang, C.-L., Chen, M.-T., Chu, H.-Y., and Fei, L.-W. see Chen, M.-T.
Huang, C.N., and Abdel-Motaleb, Ibrahim M. Gummel-Poon model for single and double heterojunction bipolar transistors **G** p165
Huang, H.-P., and Tseng, W.-L. Asymptotic observer design for constrained robot systems **D** p211
Huang, T.-C., and Cheng, M.-H. see Cheng, M.-H.
Huang, X.-R., and Deng, Z.-L. see Deng, Z.-L.
Huang, Y., Yang, N., Lin, S., and Harrington, R.F. Analysis of a post with arbitrary cross-section and height in a rectangular waveguide **H** p475
Hubbert, J., Bringi, V.N., Chadrasekar, V., Meischner, P., and Golestan, Y. see Bringi, V.N.
Hubbi, W. Effects of neglecting resistances in *XB* and *BX* load-flow methods **C** p452
Hui, R., Benedetto, S., and Montrosset, I. Analysis of direct-discrimination of FSK modulated optical signal using injection-locked DFB lasers **J** p276
Hui, S.Y.R., and Christopoulos, C. Discrete transform technique for solving coupled integro-differential equations in digital computers **A** p273
Hung, W.W. Dynamic simulation of gas-turbine generating unit **C** p342
Hunt, K.J., and Sbarbaro, D. Neural networks for nonlinear internal model control **D** p431
Hunter, I.C. Design of contiguous RF filterbanks with application in channelised receivers **F** p289
Huo, K.-S., and Chen, C.S. see Chen, C.S.
Hussein, A.O., and Fahmy, M.M. Design of 2-D linear phase variable recursive digital filters for parallel form implementation **G** p335
Hwang, C., Guo, T.-Y., Shieh, L.-S., and Chen, C.-H. Evaluation of the impulse response energy of a 2-D linear discrete separable-denominator system **G** p125
Hwang, C.-T., and Weng, C.-M. see Weng, C.-M.
Hwang, D.-H., Bien, Z., and Oh, S.-R. Iterative learning control method for discrete-time dynamic systems **D** p139
Hwang, G.-J., and Hong, C.-G. see Hong, C.-G.
Hwang, G.J., Hong, C.G., and Ho, S.C. see Hong, C.G.
Hwang, J.-S., and Wu, C.-Y. Efficient techniques in the sizing and constrained optimisation of CMOS combinational logic circuits **E** p154

I

Ibáñez, M.C., Montaño, J.C., Ojeda, A.L., and Benítez, J.G. see Montaño, J.C.
Ibrahim, M.K., Ait-Boudaoud, D., and Hayes-Gill, B.R. see Ait-Boudaoud, D.
Ikejiri, T., and Kawamoto, A. Erosive failure caused by surface discharge on the surface of epoxy resin immersed in insulating oil **A** p288
Irving, L.D., Alder, C.J., Brewitt-Taylor, C.R., Dixon, M., Hodges, R.D., and Rees, H.D. see Alder, C.J.
Irving, M.R., Smith, M.M., Powell, R.S., and Sterling, M.J.H. see Smith, M.M.
Irwin, G.W., and Maguire, L.P. see Maguire, L.P.
Ishikawa, H., and Kotaki, Y. see Kotaki, Y.
Ishikawa, T., and Kataoka, T. V curve of hysteresis motor **B** p137
Ishizaka, K., and Itoh, R. see Itoh, R.
Ismaeel, A.A. Testing for stuck faults in CMOS combinational circuits **G** p191
Ito, K. Ranging and positioning experiments for aircraft using Engineering Test Satellite V **F** p571
Ito, M., and Cai, M. see Cai, M.
Itoh, H., Mukai, S., Watanabe, M., Mori, M., and Yajima, H. An active beam-scanning optoelectronic logic gate **J** p113
Itoh, H., Mukai, S., Watanabe, M., and Yajima, H. see Mukai, S.
Itoh, R., and Ishizaka, K. Single-phase sinusoidal rectifier with step-up/down characteristics **B** p338
Itoh, R., and Ishizaka, K. Three-phase flyback AC-DC convertor with sinusoidal supply currents **B** p143
Izumi, M., Fukunaga, K., Murata, H., and Asano, T. see Fukunaga, K.

J

Jacobsen, G., Jensen, B., Bødtker, E., Christensen, B., and Skettrup, T. see Jensen, B.
Jandrell, I.R., and Reynders, J.P. Consideration of skin effect in high-voltage coaxial systems under transient and steady-state conditions, and its impact on steep travelling waves **C** p445
Janhsen, A., and Hansen, V. Arrays of finite or infinite extent in multilayered media for use as passive frequency-selective surfaces **H** p1
Jaros, M., and Turton, R.J. see Turton, R.J.
Jarry, Ph., Erman, M., Riglet, Ph., Martin, B.G., Renaud,, M., Vinchant, J.F., and Cavaillès, J.A. see Erman, M.
Jasmon, G.B., and Lee, L.H.C.C. Stability of load-flow techniques for distribution system voltage stability analysis **C** p479

Javan, H. Noise measure for optimum broadband design **G** p1
Jayasundere, N.D., Gong, J., MacLean, T.S.M., and Wu, Z. see Gong, J.
Jensen, B., Jacobsen, G., Bødtker, E., Christensen, B., and Skettrup, T. Performance of novel low intermediate frequency coherent optical DPSK receiver using baseband detection **J** p401
Jervis, B.W., and Crofts, M. Comparison of computer-aided tuning algorithms applied to the amplitude response of passive analogue filters **G** p363
Jiang, C.G., and Sun, S.Q. see Sun, S.Q.
Jiang, L., and Schill, R.A. Theory for cylindrical, open ended, complex cavities supporting all TE_{0n} modes: Gyrotron application **H** p297
Jimhui, Lu, Guosui, Liu, Xiangquan, Shi, Guoyu, Yang, and Yaoliang, Song see Guosui, Liu
Jitendra Das, R., and Yoganandam, Y. see Yoganandam, Y.
Johns, A.T., Lai, L.L., El-Hami, M., and Daruvala, D.J. New approach to directional fault location for overhead power distribution feeders **C** p351
Johnston, R.D., Tattersall, G.D., and Foster, S. see Tattersall, G.D.
Joma, Bashir M., Nanda, J., Bapi Raju, V., Bijwe, P.R., and Kothari, M.L. see Nanda, J.
Jones, A.H., and Wang, H. see Wang, H.
Jones, B.L., Al Zahawi, B.A.T., and Drury, W. see Al Zahawi, B.A.T.
Jones, D.A. President's Inaugural address: Electrical engineering; the backbone of society **A** p1
Jones, E.V., Deslandes, J.E., and Cochrane, P. see Deslandes, J.E.
Jones, G.R., Taylor, S., Fang, M.T.C., and Shimmin, D.S. see Taylor, S.
Jones, S., and Spray, A. see Spray, A.
Jones, T.B., and Warrington, E.M. see Warrington, E.M.
Jorgenson, M.B., Fattouche, M., and Nichols, S.T. Applications of minimum redundancy arrays in adaptive beamforming **H** p441
Jun, Yang, and Fa-Long, Luo see Fa-Long, Luo

K

Kallel, S., and Haccoun, D. see Haccoun, D.
Kamei, H., Hayashi, H., Yano, H., Aga, K., and Sasaki, G. see Hayashi, H.
Kamwa, I., Viarouge, P., and Dickinson, E.J. Identification of generalised models of synchronous machines from time-domain tests **C** p485
Kanakaris, P., and Al-Charchafchi, S.H. see Al-Charchafchi, S.H.
Kao, M.-S., and Wu, J. Performance evaluation of coherent subcarrier multiplexed optical distribution systems with common local oscillators **J** p269
Karunadasa, J.P., and Renfrew, A.C. Design and implementation of microprocessor based sliding mode controller for brushless servomotor **B** p345
Kasahara, K., Kurihara, K., Tashiro, Y., Ogura, I., and Sugimoto, M. see Kurihara, K.
Kaski, K., Saarinen, J., Tomberg, J., and Vehmanen, L. see Saarinen, J.
Kastner, R. On the convergence of matrix elements in planar and waveguide problems **H** p532
Kastner, R., and Herscovici, N. Two stage computation of apertures in finite screens **H** p435
Kataoka, T., and Ishikawa, T. see Ishikawa, T.
Kawamoto, A., and Ikejiri, T. see Ikejiri, T.
Kazimierczuk, M.K. Class D voltage-switching MOSFET power amplifier **B** p285
Ke, B., and Kishk, A.A. Analysis of spherical circular microstrip antennas **H** p542
Keer, M., Bokhari, S.A., and Gardiol, F.E. see Bokhari, S.A.
Kennedy, P., and Withington, S. see Withington, S.
Kersten, W.F.J., and van den Heuvel, W.M.C Worst case studies of short-circuit making-currents **C** p129
Kesava Murthy, M.J., Narayana Rao, D., Krishna Reddy, K., Ravi, K.S., Rao, S.V.B., Dutta, H.N., Sarkar, S.K., and Reddy, B.M. see Narayana Rao, D.
Khan, R.H., and Mitchell, D.K. Waveform analysis for high-frequency FMICW radar **F** p411
Kibble, B.P. Present state of the electrical units (Commissioned IEE review) **A** p187
Kim, H.K., Lee, D.S., Kim, M.G., and Youn, M.J. see Lee, D.S.
Kim, H.S., and Leon-Garcia, A. Decomposition of output queuing switches **I** p407
Kim, J.H., and Bien, Z. Geometric approach for fault diagnosis in linear dynamic control systems **D** p293
Kim, M.G., Lee, D.S., Kim, H.K., and Youn, M.J. see Lee, D.S.
Kimura, T., Suto, K., and Nishizawa, J. see Suto, K.
Kinoshita, K., Rubio, A., and Sainz, J.A. see Rubio, A.
Kinoshita, T., Ando, M., and Murasaki, T. see Ando, M.
Kirby, R.P., Williams, L.D., Summerfield, M.A., Rust, D.J., Astbury, S., and Lee, P.A. see Williams, L.D.
Kirk, J.A., Anjanappa, M., and Anand, D.K. see Anjanappa, M.
Kirkby, P.A., Nyairo, K.O., White, I.H., and Armistead, C.J. see Nyairo, K.O.
Kirlin, R.L., and Du, W. Improvement on the estimation of covariance matrices by incorporating crosscorrelations **F** p479
Kishk, A.A., Parrikar, R.P., and Elsherbeni, A.Z. see Parrikar, R.P.
Kishk, A.A., and Ke, B. see Ke, B.
Kiyokawa, H., and Sun, S.Q. see Sun, S.Q.
Klemm, R. Adaptive airborne MTI with two-dimensional motion compensation **F** p551
Knight, R.B.D., Legg, D.J., and Martin, P. Digital 'bridge' for comparison of AC–DC transfer instruments **A** p169
Knight, R.B.D., Legg, D.J., and Martin, P. Use of current comparators in the calibration of AC–DC transfer standards **A** p101
Knop, C.M. On the performance of metallic-wall conical horns with centrally-loaded dielectric material **H** p23
Knowles, G. SWIFT: stack-based microprocessor for LISP and PROLOG **E** p299
Koch, T.L., and Koren, U. InP-based photonic integrated circuits **J** p139
Kohl, M., Krautschneider, W.H., and Gerhard, R. see Krautschneider, W.H.
Koivisto, P.K., Oksanen, M., and Lindell, I.V. see Oksanen, M.
Kolla, S.R., and Farison, J.B. see Farison, J.B.
Konar, A., and Mandal, A.K. Microprocessor based automatic sun tracker **A** p237
Kondo, S., Mikami, O., Noguchi, Y., Yasaka, H., and Magari, K. see Mikami, O.
Kontopoulous, P., and Deeley, E.M. see Deeley, E.M.
Koo, P., Lombardi, F., and Shen, Y.-N. Approach for the reconfiguration of multipipeline arrays **E** p131
Kopilovich, L.E., and Sodin, L.G. Two-dimensional aperiodic antenna arrays with a low sidelobe level **H** p233
Koren, U., and Koch, T.L. see Koch, T.L.
Korte, L., Lang, H., Wolf, H.D., Hedrich, H., Hoyler, C., and Thanner, C. see Lang, H.
Kortegaard, B., Anderson, F., Christensen, W., and Fullerton, L. see Anderson, F.
Koshiba, M., and Kumagami, H. see Kumagami, H.
Kotaki, Y., and Ishikawa, H. Wavelength tunable DFB and DBR lasers for coherent optical fibre communications **J** p171
Kothari, D.P., Das, D., Kothari, M.L., and Nanda, J. see Das, D.
Kothari, M.L., Das, D., Kothari, D.P., and Nanda, J. see Das, D.
Kothari, M.L., Hari, L., and Nanda, J. see Hari, L.
Kothari, M.L., Nanda, J., Bapi Raju, V., Bijwe, P.R., and Joma, Bashir M. see Nanda, J.
Koumboulis, F.N., and Paraskevopoulos, P.N. see Paraskevopoulos, P.N.
Kouvaritakis, B., Rossiter, J.A., and Dunnett, R.M. see Rossiter, J.A.
Kraft, R., Leitch, R., and Luntz, R. see Leitch, R.
Kramer, B. Harari, J., Decoster, D., Vilcot, J.P., Oguey, C., Salsac, P., and Ripoche, G. see Harari, J.
Krautschneider, W.H., Gerhard, R., and Kohl, M. Current flow between neighbouring trench cells triggered by alpha particle strikes **G** p689
Kreuzgruber, P., Bonek, E., Scholtz, A.L., and Österreicher, J. Modelling of three-port RF transformers **G** p325
Kriezis, E.E., Antonopoulos, C.S., and Panas, S.M. see Antonopoulos, C.S.
Krishna Reddy, K., Narayana Rao, D., Ravi, K.S., Rao, S.V.B., Kesava Murthy, M.J., Dutta, H.N., Sarkar, S.K., and Reddy, B.M. see Narayana Rao, D.
Krishnamurthi, V., Sa'id, W.K., and Al-Awad, N.A. Phase margin of linear time invariant systems from Routh array **D** p410
Krzymien, W.A., and Bilodeau, T.D. see Bilodeau, T.D.
Kucharska, A.I., Middlemast, I., Sarma, J., Shore, K.A., Fletcher, E.D., and Blood, P. see Middlemast, I.
Kudva, P., Yang, T.-C., and Yang, J.C.S. see Yang, T.-C.
Kumagami, H., and Koshiba, M. Finite-element method using Hermitian line elements for planar diffused optical waveguides **J** p218
Kumagami, H., and Koshiba, M. Frequency response of silicon-clad planar diffused optical waveguides **J** p249
Kumar, B., Reddy, M.R.R., and Dutta Roy, S.C. see Reddy, M.R.R.
Kumar, S., and Wells, G. Memory controlled feedforward linearliser suitable for MMIC implementation **H** p9
Kuntman, H. Novel modification on SPICE BJT model to obtain extended accuracy **G** p673
Kunz, U.H., Pelczewski, P.M., and Oberschelp, W. see Pelczewski, P.M.
Kuo, J.B., Chiang, M.L., and Lu, T.C. see Chiang, M.L.
Kurihara, K., Tashiro, Y., Ogura, I., Sugimoto, M., and Kasahara, K. 32 × 32 two-dimensional array of vertical to surface transmission electrophotonic devices with a *pnpn* structure **J** p161
Kuttler, J.R., and Castella, F.R. see Castella, F.R.
Kuźmiński, K., and Woźniak, P. see Woźniak, P.
Kwaspen, J.J.M., Schemmann, M.F.C., Heyker, H.C., and van de Roer, Th.G. see Schemmann, M.F.C.
Kwon, B.H., and Song, E.H. Design of current source using 12-pulse phase-controlled rectifier **B** p185

L

Lacroix, S., Black, R.J., Gonthier, F., and Love, J.D. see Black, R.J.
Lacroix, S., Love, J.D., Henry, W.M., Stewart, W.J., Black, R.J., and Gonthier, F. see Love, J.D.
Ladouceur, F., Love, J.D., and Skinner, I.M. Single mode square- and rectangular-core waveguides **J** p253
Lai, L.L., Johns, A.T., El-Hami, M., and Daruvala, D.J. see Johns, A.T.
Lam, W.H., and Steele, R. Performance of direct-sequence spread-spectrum multiple-access systems in mobile radio **I** p1
Lang, H., Wolf, H.D., Korte, L., Hedrich, H., Hoyler, C., and Thanner, C. GaAs/AlGaAs quantum well laser for high-speed applications **J** p117
Lang, J.H., and Torrey, D.A. see Torrey, D.A.
Langley, R.J., Callaghan, P., and Parker, E.A. see Callaghan, P.
Lapierre, J., Black, R.J., and Bures, J. see Black, R.J.
Larkin, R., Choi, S.S., Bastick, M.T., and Ferres, A.W. see Choi, S.S.
Larsen, T., and Engberg, J. see Engberg, J.
Lasenby, J., and Fitzgerald, W.J. A Bayesian approach to high-resolution beamforming **F** p539
Lasri, T., Dujardin, B., and Leroy, Y. Microwave sensor for moisture measurements in solid materials **H** p481
Latifi, S. Simulation of PM2I network by folded hypercube **E** p397
Lau, K.S., and Wade, G. Spatial-spectral clustering using recursive spanning trees **I** p232
Laverty, S.J., and Barr, D.A. see Barr, D.A.
Lawandy, N.M., and Bernardin, J.P. see Bernardin, J.P.
Lazarus, M.J., Rabah, K.V.O, and McKeany, P.S. Stabilised power MOS-bipolar modules **G** p564
Learmouth, M.D., Skrimshire, C.P., Hewett, N.P., and Reid, I. see Skrimshire, C.P.
Ledwich, G.F., and Bolton, A.G. Tracking periodic inputs using sampled compensators **D** p242
Lee, C.M., Liaw, C.M., Chen, T.H., Wang, T.C., Cho, G.J., and Wang, C.T. see Liaw, C.M.
Lee, C.Q., Siri, K., and Fang, S.J. State plane approach to frequency response of resonant convertors **G** p557
Lee, C.Q., and Batarseh, I.E. see Batarseh, I.E.
Lee, C.Q., and Sooksatra, S. Current programmed control nonresonant coupled parallel resonant convertor **G** p372
Lee, C.W., Chung, Y.M., and Lee, S.U. Bit error probabilities of CPM signals in the frequency-selective fading channels **I** p465
Lee, D.S., Kim, M.G., Kim, H.K., and Youn, M.J. Controller design of multivariable variable structure systems with nonlinear switching surfaces **D** p493
Lee, H., and Ngo, B. Queuing analysis of the selective repeat ARQ scheme **I** p487
Lee, K.H., and Bien, Z. Initial condition problem of learning control **D** p525
Lee, L-M., Liu, L-C., Wang, H-C., and Chang, Y-C. see Liu, L-C.
Lee, L.H.C.C., and Jasmon, G.B. see Jasmon, G.B.
Lee, L.S., and Chiu, J.H. see Chiu, J.H.
Lee, P.A., Williams, L.D., Kirby, R.P., Summerfield, M.A., Rust, D.J., and Astbury, S. see Williams, L.D.
Lee, S.B., and Tchah, K.H. Design centring for yield and noise figure improvement of GaAs MESFETs **G** p467
Lee, S.U., Lee, C.W., and Chung, Y.M. see Lee, C.W.
Lee, T., Hair, T., and Baker, C.J. see Hair, T.
Lee, T.-H. Analytic models for performance evaluation of single-buffered banyan networks under nonuniform traffic **E** p41
Lee, T.-H. Performance analysis of efficient concatenated coding scheme for ARQ protocols **I** p148
Lee, T.-H. Throughput efficiency of a class of continuous ARQ schemes under Markovian error patterns **I** p511
Lee, T.-S., and Zoltowski, M.D. see Zoltowski, M.D.
Lee, T.-T., and Shih, C.-L. Discrete-time optimal control for linear time-delay systems with deterministic disturbances **D** p573
Lee, Y.-S., and Wu, C.-J. see Wu, C.-J.
Lee, Y.-S., and Wu, C.-J. Application of superconducting magnetic energy storage unit on damping of turbogenerator subsynchronous oscillation **C** p419
Lee, Y.S., Chow, M.H.L., and Wong, J.S.L. see Chow, M.H.L.
Lee, Y.S., Chow, M.H.L., and Wong, J.S.L. SPICE simulation of nonlinear equations and circuits **G** p273
Legg, D.J., Knight, R.B.D., and Martin, P. see Knight, R.B.D.

Lehto, A., Tuovinen, J., and Räisänen, A. see Tuovinen, J.
Lehto, A., Tuovinen, J., and Räisänen, A. Proposed method for measurement of absorption loss and beam efficiency of large mm-wave reflector antennas in compact antenna test range by using hot and cold loads **H** p13
Leigh, S.P., Mellor, P.H., and Cheetham, B.M.G. see Mellor, P.H.
Leitch, R., Kraft, R., and Luntz, R. RESCU: a real-time knowledge based system for process control **D** p217
Leitch, R.R., and Tokhi, M.O. see Tokhi, M.O.
Leite da Silva, A.M., Melo, A.C.G., and Cunha, S.H.F. Frequency and duration method for reliability evaluation of large-scale hydrothermal generating systems **C** p94
Leithead, W.E., de la Salle, S., and Reardon, D. Role and objectives of control for wind turbines **C** p135
Lemaire-Semail, B., Bouillault, F., and Razek, A. Modelling of vector controlled cage induction motor with FEM **B** p297
Leon-Garcia, A., and Kim, H.S. see Kim, H.S.
Leroy, Y., Lasri, T., and Dujardin, B. see Lasri, T.
Lesso, W.G., Rice, R.E., Grady, W.M., Noyola, A.H., and Connolly, M.E. see Rice, R.E.
Lever, K.V., Demidenko, S.N., and Levin, E.M. see Demidenko, S.N.
Levin, E.M., Demidenko, S.N., and Lever, K.V. see Demidenko, S.N.
Levy, M.F., and Craig, K.H. see Craig, K.H.
Lewis, F.L., Mertzios, B.G., and Marszałek, W. Analysis of singular bilinear systems using Walsh functions **D** p89
Li, J.-J., and Weng, C.-M. see Weng, C.-M.
Li, L., Zhang, M., and Yang, W. see Zhang, M.
Li, L.-M., Yu, D.-Y., and Wu, S.-Q. see Yu, D.-Y.
Li, S.-F., Rong, Y., and Dou, W.-B. see Rong, Y.
Liaw, C.M. Optimal controller with prescribed dominant energy eigenvalues **D** p405
Liaw, C.M., Chen, T.H., Wang, T.C., Cho, G.J., Lee, C.M., and Wang, C.T. Design and implementation of a single phase current-forced switching mode bilateral convertor **B** p129
Lier, E., Rengarajan, S., and Rahmat-Samii, Y. Comparison between different rectangular horn elements for array antenna applications **H** p283
Lier, E., and Stoffels, C. Propagation and radiation characteristics of rectangular dielectric-loaded hybrid mode horn **H** p407
Lightfoot, H.A., Boutlendj, M., Allen, N.L., and Neville, R.B. see Boutlendj, M.
Ligthart, L.P., Niemeijer, R.J., and van Sinttruyen, J.S. see Niemeijer, R.J.
Lim, C.C., and Zhao, W. Performance analysis of dynamic multitasking imprecise computation system **E** p345
Lim, K.W., Hang, C.C., and Ho, W.K. see Hang, C.C.
Lin, H.-K., and Abdel-Motaleb, I.M. Small signal nonquasistatic models for GaAs field effect transistors for implementation in SPICE. Part I: Modulation-doped field effect transistors (MODFETs) **G** p735
Lin, H.-K., and Abdel-Motaleb, I.M. Small signal nonquasistatic models for GaAs field effect transistors for implementation in SPICE. Part II: Metal semiconductor field effect transistors (MESFETs) **G** p749
Lin, J., Wang, M., and Roberts, P.D. Composite dynamic and steady-state approach to stochastic optimising control of steady-state systems with output dependent constraints **D** p123
Lin, M.-S., and Chang, W.-T. see Chang, W.-T.
Lin, S., Huang, Y., Yang, N., and Harrington, R.F. see Huang, Y.
Linde, L.P. AGC strategy for adaptive digital modems employing cyclic channel estimation in an HF frequency hopping scenario **I** p185
Lindell, I.V., Oksanen, M., and Koivisto, P.K. see Oksanen, M.
Lindley, M.W., Pitman, K.C., Simkin, D., and Cooper, J.F. see Pitman, K.C.
Linkens, D.A., and Hasnain, S.B. Self-organising fuzzy logic control and application to muscle relaxant anaesthesia **D** p274
Liou, J., Wong, W.W., and Winton, R.S. see Wong, W.W.
Liou, J.J., and Yuan, J.S. Physics-based large-signal heterojunction bipolar transistor model for circuit simulation **G** p97
Lisik, Z., and Turowski, M. Two-dimensional simulation of thyristor transient states from conduction to forward blocking **G** p575
Litva, J., Wu, K.-L., Fralich, R., and Wu, C. see Wu, K.-L.
Litva, J., Wu, K.-L., Spenuk, M., and Fang, D.-G. see Wu, K.-L.
Litva, J., and Lo, T. see Lo, T.
Liu, Kun, and Prasad, Ramjee Comparing coding efficiency of vector chain coding and run-length coding for line drawings **I** p363
Liu, L-C., Lee, L-M., Wang, H-C., and Chang, Y-C. Layered neural nets applied in the recognition of voiceless unaspirated stops **I** p69
Liu, Q.H., Chew, W.C., Nie, Z., and Lo, Y.T. see Chew, W.C.
Liu, S.-I., Tsao, H.-W., and Wu, J. CCII-based continuous-time filters with reduced gain-bandwidth sensitivity **G** p210
Liu, W.-C., Sun, C.-Y., and Lour, W.-S. Characteristics of GaAs graded-period delta-doped superlattice **G** p629
Liu, W.-C., Sun, C.-Y., and Lour, W.-S. Observation of multi-state negative differential conductivity in periodic delta-doped superlattice **G** p424
Liu, Y.-J., and Biglieri, E. Fully transparent phase/Doppler invariant trellis-coded modulation **I** p105
Liu, Z.J., Vourdas, A., and Binns, K.J. Magnetic field and eddy current losses in linear and rotating permanent magnet machines with a large number of poles **A** p289
Livingston, E.P., Sangster, A.J., and Swan, A. see Sangster, A.J.
Lloris, A., Ortega, J., and Prieto, A. The fast Tamari transform **E** p147
Lo, H.-Y., and Yang, T.C. Balanced high-speed residue number VLSI multiplier with error detection **G** p421
Lo, R., and Findler, N.V. see Findler, N.V.
Lo, T., and Litva, J. Use of a highly deterministic multipath signal model in low-angle tracking **F** p163
Lo, Y.T., Chew, W.C., Nie, Z., and Liu, Q.H. see Chew, W.C.
Łobos, T., and Eichhorn, K.-Fr. see Eichhorn, K.-Fr.
Lockhart, G.B., and Al-Jalili, Y.O. Analysis and simulation of a hybrid modulation scheme for embedding data in amplitude-modulated signals **I** p426
Lomax, A.M., and White, I.H. Modulation of picosecond pulses using semiconductor laser amplifiers **J** p178
Lombardi, F., Koo, P., and Shen, Y.-N. see Koo, P.
Longo, M., Conte, E., Lops, M., and Ullo, S.L. see Conte, E.
Longo, M., Conte, E., and Lops, M. see Conte, E.
Lopez, J.M., Peinado, A.M., Sanchez, V.E., Segura, J.C., and Ayuso, A.J. Rubio see Peinado, A.M.
Lops, M., Conte, E., Longo, M., and Ullo, S.L. see Conte, E.
Lops, M., Conte, E., and Longo, M. see Conte, E.
Lour, W.-S., Liu, W.-C., and Sun, C.-Y. see Liu, W.-C.
Louw, W.J. Matrix analysis of split coaxial balun **H** p378
Love, J.D., Black, R.J., Lacroix, S., and Gonthier, F. see Black, R.J.
Love, J.D., Henry, W.M., Stewart, W.J., Black, R.J., Lacroix, S., and Gonthier, F. Tapered single-mode fibres and devices. Part 1: Adiabaticity criteria **J** p343
Love, J.D., Ladouceur, F., and Skinner, I.M. see Ladouceur, F.
Lowe, D., and Webb, A.R. Time series prediction by adaptive networks: a dynamical systems perspective **F** p17
Lowery, A.J. Integrated mode-locked laser design with a distributed-Bragg reflector **J** p39
Lu, K.S., and Wei, J.N. Rational function matrices and structural controllability and observability **D** p388
Lu, T.C., Chiang, M.L., and Kuo, J.B. see Chiang, M.L.
Lu, W.-S., Sunder, S., Antoniou, A., and Su, Y. see Sunder, S.
Lucas, J., Corlett, B.J., and Smith, J.S. see Corlett, B.J.
Luccio, F., and Pinotti, M.C. Minimal synthesis of multivalued functions with new operators **E** p419
Lui, P.K., and Muzio, J.C. Boolean matrix transforms for the parity spectrum and minimisation of modulo-2 canonical expansions **E** p411
Luk, K.-M., and Tam, W.-Y. see Tam, W.-Y.
Luk, K.-M., and Tam, W.-Y. Patch antennas on a spherical body **H** p103
Lun, D.P.-K., and Siu, W.-C. Extended diagonal structure for address generation of the prime factor algorithm **G** p449
Luntz, R., Leitch, R., and Kraft, R. see Leitch, R.
Luo, S., Thorburn, M., and Tripathi, V.K. Modelling of multiple coupled concentric open and closed microstrip ring structure **H** p573
Lynch, T.G., MacBean, M.D.A., Walling, R.H., and Thurlow, A.R. Design and fabrication of packaged InP/InGaAsP multiple quantum well waveguide components with very low insertion loss **J** p319

M

Ma, J.-G. Numerical analysis of the characteristics of TE-modes of waveguides loaded with inhomogeneous dielectrics **H** p109
MacBean, M.D.A., Lynch, T.G., Walling, R.H., and Thurlow, A.R. see Lynch, T.G.
MacLean, T.S.M., Gong, J., Jayasundere, N.D., and Wu, Z. see Gong, J.
Macchi, O. Common formalism for adaptive identification in signal processing and control **F** p295
Macchi, O., Bershad, N., and Mboup, M. Steady-state superiority of LMS over LS for time-varying line enhancer in noisy environment **F** p354
Machida, T., Odagawa, T., Sanada, T., Nakai, K., Wakao, K., and Yamakoshi, S. see Odagawa, T.
Maclean, T.S.M., Badar, A.H., Ghafouri-Siraz, H., and Gazey, B.K. see Badar, A.H.
Maclean, T.S.M., and Badar, A.H. see Badar, A.H.
Maddocks, M.C.D., and Smith, M.S. Flat-plate steerable antennas for satellite communications and broadcast reception **H** p159
Magari, K., Mikami, O., Noguchi, Y., Yasaka, H., and Kondo, S. see Mikami, O.
Magistrali, F., Canali, C., Paccagnella, A., Sangalli, M., Tedesco, C., and Zanoni, E. see Canali, C.
Maguire, L.P., and Irwin, G.W. Transputer implementation of Kalman filters **D** p355
Mahmoud, S.A. Motion detection and estimation of multiple moving objects in an image sequence using the cosine area transform (CAT) **I** p351
Mahmoud, S.A., Crozier, S.N., and Falconer, D.D. see Crozier, S.N.
Maio, I., Bava, G.P., and Montrosset, I. Mode competition and switching in three section DBR tunable lasers **J** p52
Majumdar, A.K., and Sarkar, S. see Sarkar, S.
Makin, B., and Hu, D. see Hu, D.
Makrakis, D., Yongaçoğlu, A., and Feher, K. Detection of partial response signals using noise prediction techniques **I** p133
Makrakis, D., and Mathiopoulos, P.T. Differential detection of correlative encoded continuous phase modulation schemes using decision feedback **I** p473
Malag, A., Czarnecki, K., and Fronc, K. Thermal index guiding in (AlGa)As proton-isolated lasers: its origins and reduction by post-implantation heat treatment **J** p13
Malherbe, J.A.G., and de Villiers, M.C. see de Villiers, M.C.
Malik, O.P., Roy, S., and Hope, G.S. see Roy, S.
Mandal, A.K., and Konar, A. see Konar, A.
Manetti, S. New approach to automatic symbolic analysis of electric circuits **G** p22
Manias, S. Novel full bridge semicontrolled switch mode rectifier **B** p252
Manikas, A.N., and Turner, L.F. Adaptive signal parameter estimation and classification technique **F** p267
Mannaa, H.M., and Singh, S. see Singh, S.
Mannikko, P.D., Butler, C.M., Courtney, C.C., and Silvestro, J.W. see Butler, C.M.
Manning, C.D., and Abdel-Halim, M.A. see Abdel-Halim, M.A.
Mansour, M., and Fessas, P. see Fessas, P.
Marriott, A.P., Tsalides, Ph., and Hicks, P.J. VLSI implementation of smart imaging system using two-dimensional cellular automata **G** p582
Mars, P., and Tang, C.K.K. see Tang, C.K.K.
Marsh, J.F., and Aldeen, M. see Aldeen, M.
Marsh, J.H., Bryce, A.C., Gwilliam, R., and Glew, R.W. see Bryce, A.C.
Marsh, J.H., Hansen, S.I., and Roberts, J.S. see Hansen, S.I.
Marshall, A.C., Boffey, T.B., Green, J.R., and Hague, H. Optimal design of electricity distribution networks **C** p69
Marszałek, W., Lewis, F.L., and Mertzios, B.G. see Lewis, F.L.
Marti, J.R., and Soudack, A.C. Ferroresonance in power systems: Fundamental solutions **C** p321
Martin, B.G., Erman, M., Riglet, Ph., Jarry, Ph., Renaud,, M., Vinchant, J.F., and Cavailles, J.A. see Erman, M.
Martin, P., Knight, R.B.D., and Legg, D.J. see Knight, R.B.D.
Martinelli, G., and Perfetti, R. Synthesis of feed-forward neural analogue-digital convertors **G** p567
Masrur, M.A., Ayoub, A.K., and Tielking, J.T. Studies on asynchronous operation of synchronous machines and related shaft torsional stresses **C** p47
Mathiopoulos, P.T., and Makrakis, D. see Makrakis, D.
Matsuda, K., Chino, T., Adachi, H., and Shibata, J. see Chino, T.
Matsuda, K., and Shibata, J. Optical interconnections and optical digital computing based on the photonic parallel memory (PPM) **J** p67
Mayer, C.E., Morris, D., and Davis, J.H. see Morris, D.
Mazilu, D., and Mihalache, D. see Mihalache, D.
Mazumdar, R., and Douligeris, C. see Douligeris, C.
Mbamalu, G.A.N., and El-Hawary, F. see El-Hawary, F.
Mboup, M., Macchi, O., and Bershad, N. see Macchi, O.
McCormick, W.S., and Tsui, J.B.Y. Suboptimal real-time frequency/incident-angle estimator for multiple radar pulses **F** p247
McCowen, A., and Tran, T.V. Matrix interpretation of the spectral iteration technique for 3D dielectric scatterers in the resonance region **H** p219
McCulloch, R.A., and Tonkin, S.P. see Tonkin, S.P.
McGhee, J., Henderson, I.A., Szaniawski, W., and Domaradzki, P. see Henderson, I.A.
McKeany, P.S., Lazarus, M.J., and Rabah, K.V.O see Lazarus, M.J.
McLane, P., and Fung, A. see Fung, A.
McLaren, D.L., and Nguyen, D.T. Removal of subjective redundancy from DCT-coded images **I** p345

McLaughlin, S. Adaptive equalisation via Kalman filtering techniques **F** p388
McLaughlin, S., and Gibson, G. see Gibson, G.
McLernon, D.C. New method for the elimination of two-dimensional limit cycles in first order structures **G** p541
McWhirter, J.G., Proudler, I.K., and Shepherd, T.J. see Proudler, I.K.
Meggitt, B.T., Boyle, W.J.O., Grattan, K.T.V., Baruch, A.E., and Palmer, A.W. Heterodyne processing scheme for low coherence interferometric sensor systems **J** p393
Megson, G.M., and Brudaru, O. see Brudaru, O.
Meischner, P., Bringi, V.N., Chadrasekar, V., Hubbert, J., and Golestan, Y. see Bringi, V.N.
Mellis, J., Hale, W.B., Sundaresan, H., and Henning, I.D. see Hale, W.B.
Mellitt, B., Brown, J.C., and Allan, J. see Brown, J.C.
Mellor, P.H., Al-Taee, M.A., and Binns, K.J. Open loop stability characteristics of synchronous drive incorporating high field permanent magnet motor **B** p175
Mellor, P.H., Chaaban, F.B., and Binns, K.J. Estimation of parameters and performance of rare-earth permanent-magnet motors avoiding measurement of load angle **B** p322
Mellor, P.H., Leigh, S.P., and Cheetham, B.M.G. Reduction of spectral distortion in class D amplifiers by an enhanced pulse width modulation sampling process **G** p441
Mellor, P.H., Roberts, D., and Turner, D.R. Lumped parameter thermal model for electrical machines of TEFC design **B** p205
Melo, A.C.G., Leite da Silva, A.M., and Cunha, S.H.F. see Leite da Silva, A.M.
Mentzelopoulou, S.E., Antoniou, G.E., and Glentis, G.O. see Antoniou, G.E.
Mertzios, B.G., Lewis, F.L., and Marszalek, W. see Lewis, F.L.
Michalski, K.A., Di, X., and Glisson, A.W. Rigorous analysis of the TM_{0n} modes in a dielectric-post resonator with an annular slot in the upper plate **H** p429
Michel, H., Rizkalla, M.E., and Gundrum, H. see Rizkalla, M.E.
Middlemast, I., Sarma, J., Shore, K.A., Kucharska, A.I., Fletcher, E.D., and Blood, P. Absorptive bistability in inhomogeneously pumped quantum well laser diodes **J** p301
Mihalache, D., and Mazilu, D. Propagation phenomena of nonlinear guided waves in graded-index planar waveguides **J** p365
Mikami, O., Noguchi, Y., Yasaka, H., Magari, K., and Kondo, S. Emission spectral width broadening for InGaAsP/InP superluminescent diodes **J** p133
Minamide, N., Nikiforuk, P.N., and Gupta, M.M. Decoupling of descriptor systems **D** p453
Mitchell, D.K., and Khan, R.H. see Khan, R.H.
Miyagi, H., and Yamashita, K. see Yamashita, K.
Miyamoto, T. Accurate numerical analysis of polarisation-preserving optical fibre with three-layer elliptical cross-section **J** p1
Mohamed, A. Performance comparisons of AC load-flow techniques for real time applications **C** p457
Mohamed-Nor, K., and Rashid, A.H.A. Efficient economic dispatch algorithm for thermal unit commitment **C** p213
Mohan, P., Balasubramanian, R., and Rao, K.S.P. see Balasubramanian, R.
Mohtadi, C., Shook, D.S., and Shah, S.L. see Shook, D.S.
Moir, T.J. Frequency-domain approach to state-space LQG self-tuning control **D** p372
Molander, M., Breitholtz, C., and Navarro-Adlemo, R. see Breitholtz, C.
Molina, A., Fannin, P.C., Swords, S.S., and Cullen, P.J. see Fannin, P.C.
Molkdar, D. Review on radio propagation into and within buildings **H** p61
Momoh, J.A., and Shen, X. Recursive approach to optimal control problem of multiarea electric energy system **D** p543
Montague, G.A., Willis, M.J., Di Massimo, C., Tham, M.T., and Morris, A.J. see Willis, M.J.
Montaño, J.C., Ibáñez, M.C., Ojeda, A.L., and Benitez, J.G. Measurement of the load admittance and reactive current RMS value in the frequency domain **A** p138
Montrosset, I., Hui, R., and Benedetto, S. see Hui, R.
Montrosset, I., Maio, I., and Bava, G.P. see Maio, I.
Montuschi, P., Valenzano, A., and Ciminiera, L. see Valenzano, A.
Moon, T.T., and Bawden, P.J. High resolution RCS measurements of boats **F** p218
Moore, W.R., Card, H.C., and Schneider, C.R. see Card, H.C.
Moore, W.R., and Yassine, H.M. see Yassine, H.M.
Morandi, C., and Corsi, F. see Corsi, F.
Morgan, G.B., Tsutsumi, M., and Shimasaki, H. see Tsutsumi, M.
Mori, M., Itoh, H., Mukai, S., Watanabe, M., and Yajima, H. see Itoh, H.
Morris, A.J., Tham, M.T., Vagi, F., and Wood, R.K. see Tham, M.T.
Morris, A.J., Willis, M.J., Di Massimo, C., Montague, G.A., and Tham, M.T. see Willis, M.J.
Morris, A.S., and Zalzala, A.M.S. see Zalzala, A.M.S.
Morris, D., Davis, J.H., and Mayer, C.E. Experimental assessment of phase retrieval holography of radiotelescope **H** p243
Morrow, R., Murphy, A.B., and Powell, K.J. see Murphy, A.B.
Müller, N., and Quintana, V.H. see Quintana, V.H.
Muammar, H.K., and Nixon, M. Tristage Hough transform for multiple ellipse extraction **E** p27
Muha, P.A. Expert system for SROOT **D** p381
Mukai, S., Itoh, H., Watanabe, M., Mori, M., and Yajima, H. see Itoh, H.
Mukai, S., Watanabe, M., Itoh, H., and Yajima, H. Stabilisation of fundamental-lateral-mode oscillations using optical feedback within an integrated amplifier/laser array **J** p97
Mukherjee, P.K., Sarkar, D., and Sen, S.K. see Sarkar, D.
Mukhopadhyay, S., and Rao, G.P. Integral equation approach to joint state and parameter estimation in continuous-time MIMO systems **D** p93
Murasaki, T., Ando, M., and Kinoshita, T. see Ando, M.
Murata, H., Fukunaga, K., Asano, T., and Izumi, M. see Fukunaga, K.
Murphy, A.B., Powell, K.J., and Morrow, R. Thermal treatment of sewage sludge by ohmic heating **A** p242
Murray, A.F. Silicon implementations of neural networks **F** p3
Muschitiello, M., Pavan, P., Spiazzi, G., Zanoni, E., and Cecchetti, M. see Pavan, P.
Musgrave, G., and Cosgrove, S.J. see Cosgrove, S.J.
Muzio, J.C., and Lui, P.K. see Lui, P.K.

N

Naidu, S.R. Time domain model for the ferromagnetic core, including the effects of hysteresis and eddy currents **A** p44
Najim, K., and Oppenheim, G. Learning systems: Theory and application **E** p183
Nakai, K., Odagawa, T., Machida, T., Sanada, T., Wakao, K., and Yamakoshi, S. see Odagawa, T.
Nakai, Y., and Okafuji, S. see Okafuji, S.
Nakano, H., Soga, H., Honma, T., and Yamauchi, J. Effects of adding a small disk to a spiral antenna backed by a conducting plane reflector **H** p375
Nakano, H., and Hirose, K. see Hirose, K.
Nakaoka, M., Hamada, S., and Ogino, Y. see Hamada, S.
Nakaoka, M., and Chibani, A. see Chibani, A.
Nale, A.S. Comments on 'systematic procedure for test generation of PAL based circuits' **E** p106
Nanda, J., Bapi Raju, V., Bijwe, P.R., Kothari, M.L., and Joma, Bashir M. New findings of convergence properties of fast decoupled load flow algorithms **C** p218
Nanda, J., Bijwe, P.R., and Puttabuddhi, K.L. see Bijwe, P.R.
Nanda, J., Das, D., Kothari, M.L., and Kothari, D.P. see Das, D.
Nanda, J., Hari, L., and Kothari, M.L. see Hari, L.
Nandi, A.K., Aburdene, M.F., Constantinides, A.G., and Dologlou, I. Variation of vector quantisation and speech waveform coding **I** p76
Nandi, A.K., and Chambers, J.A. New lattice realisation of the predictive least-squares order selection criterion **F** p545
Naqvi, A., Hayat, L., and Sandler, M.B. see Hayat, L.
Narayana Rao, D., Krishna Reddy, K., Ravi, K.S., Rao, S.V.B., Kesava Murthy, M.J., Dutta, H.N., Sarkar, S.K., and Reddy, B.M. A study of tropospheric scintillations using SODAR **H** p313
Nasrabadi, N.M., and Feng, Y.S. see Feng, Y.S.
Natarajan, S. A systematic method for obtaining state equations using MNA **G** p341
Natarajan, S., and Rajan, P.K. Efficient algorithm for rational transformation on polynomials **G** p530
Navarro-Adlemo, R., Breitholtz, C., and Molander, M. see Breitholtz, C.
Nelson, P.A., Boucher, C.C., and Elliott, S.J. see Boucher, C.C.
Neville, R.B., Boutlendj, M., Allen, N.L., and Lightfoot, H.A. see Boutlendj, M.
Ng, B.P. Bearing estimation using unity response beamforming approach **H** p537
Ngo, B., and Lee, H. see Lee, H.
Nguyen, D.T., and McLaren, D.L. see McLaren, D.L.
Nichols, K.G., and Webb, W.T. see Webb, W.T.
Nichols, S.T., Jorgenson, M.B., and Fattouche, M. see Jorgenson, M.B.
Nie, Z., Chew, W.C., Liu, Q.H., and Lo, Y.T. see Chew, W.C.
Niemeijer, R.J., van Sinttruyen, J.S., and Ligthart, L.P. Multipolarisation FM-CW Doppler radar signal processing for nondistributed targets **F** p185
Nikiforuk, P.N., Minamide, N., and Gupta, M.M. see Minamide, N.
Nikolopoulos, J., and Yip, G.L. see Yip, G.L.
Nishizawa, J., Suto, K., and Kimura, T. see Suto, K.
Nixon, M., and Muammar, H.K. see Muammar, H.K.
Noakes, P.D., and Green, A.D.P. see Green, A.D.P.
Noguchi, Y., Mikami, O., Yasaka, H., Magari, K., and Kondo, S. see Mikami, O.
Nohara, T.J., and Haykin, S. Canadian East Coast radar trials and the K-distribution **F** p80
Nor, Khalid Mohamed, Salam, Md-Sayeed, and Hamdan, Abdul-Razak see Salam, Md-Sayeed
Novak, L.A. When do singular inputs of an LTI system not cause discontinuities in state variables? **G** p151
Novak, L.A., and Ranic, Z.M. Minimal-order polynomial satisfying the equality $c^T p(A) = 0$ **G** p129
Noyola, A.H., Rice, R.E., Grady, W.M., Lesso, W.G., and Connolly, M.E. see Rice, R.E.
Nutt, H.C., Board, K., and Smith, R. Characteristics of δ-doped FETs in GaAs **G** p633
Nwankpa, C.O., and Shahidehpour, S.M. Stochastic model for power system planning studies **C** p307
Nyairo, K.O., White, I.H., Kirkby, P.A., and Armistead, C.J. Multichannel grating cavity (MGC) laser transmitter for wavelength division multiplexing applications **J** p337

O

O'Connor, W. Forces on semi-infinite overlapping rectangular poles: infinity permeable against saturable case **A** p176
O'Malley, M. Algorithm to produce a system of type number m using state variable feedback **D** p193
O'Reilly, J.J., and Fyath, R.S. see Fyath, R.S.
O'Reilly, J.J., and Salgado, H.M. see Salgado, H.M.
Oberschelp, W., Pelczewski, P.M., and Kunz, U.H. see Pelczewski, P.M.
Odagawa, T., Machida, T., Sanada, T., Nakai, K., Wakao, K., and Yamakoshi, S. High repetition rate operation of bistable laser diodes **J** p75
Ogino, Y., Hamada, S., and Nakaoka, M. see Hamada, S.
Oguey, C., Harari, J., Decoster, D., Vilcot, J.P., Kramer, B., Salsac, P., and Ripoche, G. see Harari, J.
Ogura, I., Kurihara, K., Tashiro, Y., Sugimoto, M., and Kasahara, K. see Kurihara, K.
Oh, S.-R., Hwang, D.-H., and Bien, Z. see Hwang, D.-H.
Ohki, M., and Saito, S. Effect of a magnetic field on low-pressure gaseous breakdown along the surface of a solid insulator **A** p300
Ojeda, A.L., Montaño, J.C., Ibáñez, M.C., and Benitez, J.G. see Montaño, J.C.
Okafuji, S., and Nakai, Y. Nonlinear TE waves in asymmetric dielectric hollow waveguides with a self-focusing Kerr-like nonlinear film **J** p204
Oksanen, M., Koivisto, P.K., and Lindell, I.V. Dispersion curves and fields for a chiral slab waveguide **H** p327
Oksanen, M.I., Hänninen, J., and Tretyakov, S.A. Vector circuit method for calculating reflection and transmission of electromagnetic waves in multilayer chiral structures **H** p513
Olgac, N., Platin, B.E., and Chang, J.-M. Sliding mode control of remotely operated vehicles for horizontal plane motions **D** p469
Ongaro, R., and Pillonnet, A. Synthetic theory of Poole and Poole–Frenkel (PF) effects **A** p127
Oppenheim, G., and Najim, K. see Najim, K.
Ortega, J., Lloris, A., and Prieto, A. see Lloris, A.
Ó Séaghdha, D.D., and Fannin, P.C. Public telex-to-facsimile network interworking facility **I** p327
Österreicher, J., Kreuzgruber, P., Bonek, E., and Scholtz, A.L. see Kreuzgruber, P.
Othman, M., Sharrif, Z.A.M., and Theong, T.S. see Sharrif, Z.A.M.
Ouyang, Z., and Shahidehpour, S.M. Heuristic multi-area unit commitment with economic dispatch **C** p242
Overshott, K.J. Address as the Chaiman of the IEE Science Education & Technology Division: Magnetism; it is permanent **A** p22

P

Paccagnella, A., Canali, C., Magistrali, F., Sangalli, M., Tedesco, C., and Zanoni, E. see Canali, C.
Pahlavan, K., and Ganesh, R. see Ganesh, R.
Pal, S., and Bhattacharyya, P. Multipeak histogram analysis in region splitting: a regularisation problem **E** p285
Palmer, A.W., Meggitt, B.T., Boyle, W.J.O., Grattan, K.T.V., and Baruch, A.E. see Meggitt, B.T.
Panas, S.M., Antonopoulos, C.S., and Kriezis, E.E. see Antonopoulos, C.S.
Panchanathan, S., and Goldberg, M. Mini-max algorithm for image adaptive vector quantisation **I** p53
Pandian, G.S., and Seraji, F.E. Optical pulse response of a fibre ring resonator **J** p235
Pang, G.K.H. Elevator scheduling system using blackboard architecture **D** p337
Pang, G.K.H., Alves de Silva, A.P., and Quintana, V.H. see Alves de Silva, A.P.
Papachristou, C.A., and Shieh, J.J. see Shieh, J.J.
Papananos, Y., and Anastassiou, D. Analysis and

VLSI architecture of a nonlinear edge-preserving noise-smoothing image filter G p433
Paraskevopoulos, P.N., and Koumboulis, F.N. Decoupling and pole assignment in generalised state space systems D p547
Paraskevopoulos, P.N., and Koumboulis, F.N. Unifying approach to observers for regular and singular systems D p561
Parker, E.A., Callaghan, P., and Langley, R.J. see Callaghan, P.
Parker, E.A., and Sheikh, A.N.A. El Convoluted array elements and reduced size unit cells for frequency-selective surfaces H p19
Parrikar, R.P., Kishk, A.A., and Elsherbeni, A.Z. Scattering from an impedance cylinder embedded in a nonconcentric dielectric cylinder H p169
Parsons, J.D., Demery, D.A., and Turkmani, A.M.D. Sounding techniques for wideband mobile radio channels: a review I p437
Parsons, J.D., Turkmani, A.M.D., and Demery, D.A. see Turkmani, A.M.D.
Parsons, J.D., and Feeney, M.T. see Feeney, M.T.
Parsons, J.D., and Turkmani, A.M.D. see Turkmani, A.M.D.
Parsons, J.D., and Turkmani, A.M.D. Characterisation of mobile radio signals: model description I p549
Parthasarathy, G., Chaudhury, S., and Subramanian, S. see Chaudhury, S.
Pascazio, V., Alberti, G., Franceschetti, G., and Schirinzi, G. see Alberti, G.
Pascazio, V., Franceschetti, G., and Schirinzi, G. see Franceschetti, G.
Pastorino, M., Caorsi, S., and Gragnani, G.L. see Caorsi, S.
Patel, N.M. New protocol for multistage interconnection networks E p269
Patranabis, D., and Dana, S.K. see Dana, S.K.
Paul, D.K., Gibson, A.A.P., Sloan, R., and Davis, L.E. see Gibson, A.A.P.
Pavan, P., Spiazzi, G., Zanoni, E., Muschitiello, M., and Cecchetti, M. Latch-up DC triggering and holding characteristics of *n*-well, twin-tub and epitaxial CMOS technologies G p604
Pazynin, L.A., and Bryukhovetski, A.S. see Bryukhovetski, A.S.
Pérez, F., Feijoó, C., and Asensio, A. see Feijoó, C.
Pełczewski, P.M., Oberschelp, W., and Kunz, U.H. Optimal model-following control of a positioning drive system with a permanent-magnet synchronous motor D p267
Pedder, D.J., Warner, D.J., Pickering, K.L., Buck, B.J., and Pike, S.J. see Warner, D.J.
Peinado, A.M., Lopez, J.M., Sanchez, V.E., Segura, J.C., and Ayuso, A.J. Rubio Improvements in HMM-based isolated word recognition system I p201
Peng, G.-D., and Ankiewicz, A. New evanescent field approximation for weakly-guiding fibres J p33
Peng, S.-C., Chen, B.-S., and Chiou, B.-W. see Chen, B.-S.
Peng, Z.Q., and Tijhuis, A.G. see Tijhuis, A.G.
Perfetti, R., and Martinelli, G. see Martinelli, G.
Peters, F.H., and Cassidy, D.T. Spectral output of 1.3 μm InGaAsP semiconductor diode lasers J p195
Pettigrew, R., and Cuperman, V. see Cuperman, V.
Piatelli, D., Roncella, R., Saletti, R., and Terreni, P. see Roncella, R.
Pickering, K.L., Warner, D.J., Pedder, D.J., Buck, B.J., and Pike, S.J. see Warner, D.J.
Pike, S.J., Warner, D.J., Pickering, K.L., Pedder, D.J., and Buck, B.J. see Warner, D.J.
Pillonnet, A., and Ongaro, R. see Ongaro, R.
Ping, Li, Henderson, R.K., and Sewell, J.I. see Henderson, R.K.
Pinotti, M.C., and Luccio, F. see Luccio, F.
Pires, J.J.O., and Ferreira da Rocha, J.R. Carrier recovery and filtering in optical BPSK heterodyne systems disturbed by phase noise from external cavity semiconductor lasers J p284
Pitman, K.C., Lindley, M.W., Simkin, D., and Cooper, J.F. Radar absorbers: better by design F p223
Platin, B.E., Olgac, N., and Chang, J.-M. see Olgac, N.
Poelman, A.J., and Hilgers, C.J. Effectiveness of multinotch logic-product polarisation filters in radar for countering rain clutter F p427
Pollard, J.K. Multilevel data communication over optical fibre I p162
Ponsioen, Y.P.J.M. Simple approach to calculation of power system transients using the *Z*-transform C p297
Popović, Lj.M. Analytical expressions for evaluating screening effect of transmission line earth wire C p289
Postlethwaite, B. Empirical comparison of methods of fuzzy relational identification D p199
Poswig, J. Disjoint decomposition of Boolean functions E p48
Pota, H.R., and Dong, Y. see Dong, Y.
Pouladian-Kari, R., Shapland, A.J., and Benson, T.M. Development of ferrite line pulse sharpeners for repetitive high power applications H p504
Powell, K.J., Murphy, A.B., and Morrow, R. see Murphy, A.B.
Powell, R.S., Smith, M.M., Irving, M.R., and Sterling, M.J.H. see Smith, M.M.
Prada, C., Vega, P., and Aleixandre, V. see Vega, P.
Prager, R.W., Clarke, T.J.W., and Fallside, F. see Clarke, T.J.W.
Prasad, R. Performance analysis of mobile packet radio networks in real channels with inhibit-sense multiple access I p458
Prasad, Ramjee, and Liu, Kun see Liu, Kun
Premoli, A., Biey, M., and Coco, S. see Biey, M.
Preston, E.G., and Grady, W.M. Efficient method for calculating power system production cost and reliability C p221
Priest, A., Hoyle, R., and Hetherington, G. see Hoyle, R.
Prieto, A., Lloris, A., and Ortega, J. see Lloris, A.
Proudler, I.K., McWhirter, J.G., and Shepherd, T.J. Computationally efficient QR decomposition approach to least squares adaptive filtering F p341
Psychalinos, C., Haritantis, I., and Haigh, D.G. Switched capacitor circuit synthesis using voltage inversion principles G p703
Pulle, D.W.J. New data base for switched reluctance drive simulation B p331
Puttabuddhi, K.L., Bijwe, P.R., and Nanda, J. see Bijwe, P.R.

Q

Quintana, V.H., Alves de Silva, A.P., and Pang, G.K.H. see Alves de Silva, A.P.
Quintana, V.H., and Habiballah, I.O. see Habiballah, I.O.
Quintana, V.H., and Müller, N. Partitioning of power networks and applications to security control C p535

R

Räisänen, A., Lehto, A., and Tuovinen, J. see Lehto, A.
Räisänen, A., Tuovinen, J., and Lehto, A. see Tuovinen, J.
Rabah, K.V.O, Lazarus, M.J., and McKeany, P.S. see Lazarus, M.J.
Rabah, K.V.O. Temperature effects on high power low on-resistance MOS-bipolar transistor module G p510
Radhakrishnan, D. Design of CMOS circuits G p83
Radi, K.M., and Fox, B. Power system economic loading with flexible emergency reserve provision C p257
Ragdale, C.M., Buus, J., Robbins, D.J., and Reid, D.C.J. see Buus, J.
Rahim, A.H.M.A., and Al-Sammak, A.I.J. Optimal switching of dynamic braking resistor, reactor or capacitor for transient stability of power systems C p89
Rahmat-Samii, Y., Lier, E., and Rengarajan, S. see Lier, E.
Rahmat-Samii, Y., and Ghods, A.H. see Ghods, A.H.
Rajagopal, R., and Ramakrishna Rao, P DOA estimation with unknown noise fields: a matrix decomposition method F p495
Rajan, P.K., and Natarajan, S. see Natarajan, S.
Ramakrishna Rao, P, and Rajagopal, R. see Rajagopal, R.
Ranic, Z.M., and Novak, L.A. see Novak, L.A.
Rao, B.S., and Durrant-Whyte, H.F. Fully decentralised algorithm for multisensor Kalman filtering D p413
Rao, G.P., and Mukhopadhyay, S. see Mukhopadhyay, S.
Rao, K.S.P., Balasubramanian, R., and Mohan, P. see Balasubramanian, R.
Rao, S.V.B., Narayana Rao, D., Krishna Reddy, K., Ravi, K.S., Kesava Murthy, M.J., Dutta, H.N., Sarkar, S.K., and Reddy, B.M. see Narayana Rao, D.
Rashid, A.H.A., and Mohamed-Nor, K. see Mohamed-Nor, K.
Rathore, T.S. Some more published literature on current conveyors G p432
Ravi, K.S., Narayana Rao, D., Krishna Reddy, K., Rao, S.V.B., Kesava Murthy, M.J., Dutta, H.N., Sarkar, S.K., and Reddy, B.M. see Narayana Rao, D.
Ray, S. Analysis of transient behaviour of power system circuits containing iron cored coils C p275
Razek, A., Lemaire-Semail, B., and Bouillault, F. see Lemaire-Semail, B.
Reardon, D., Leithead, W.E., and de la Salle, S. see Leithead, W.E.
Reddy, B.M., Narayana Rao, D., Krishna Reddy, K., Ravi, K.S., Rao, S.V.B., Kesava Murthy, M.J., Dutta, H.N., and Sarkar, S.K. see Narayana Rao, D.
Reddy, D.C., and Deergha Rao, K. see Deergha Rao, K.
Reddy, M.R.R., Dutta Roy, S.C., and Kumar, B. Design of efficient second and higher degree FIR digital differentiators for midband frequencies G p29
Reed, I.S. Wave packet with special relativity demonstrating quantum rules, Schrödinger's equation and propagator integral A p223
Reed, I.S., Shih, M.T., and Truong, T.K. VLSI design of inverse-free Berlekamp–Massey algorithm E p295
Rees, H.D., Alder, C.J., Brewitt-Taylor, C.R., Dixon, M., Hodges, R.D., and Irving, L.D. see Alder, C.J.
Reichman, A. Adaptive detection using least-square filters I p239
Reid, D.C.J., Buus, J., Robbins, D.J., and Ragdale, C.M. see Buus, J.
Reid, I., Skrimshire, C.P., Learmouth, M.D., and Hewett, N.P. see Skrimshire, C.P.
Remiens, D., Hornung, V., Rose, B., and Robein, D. Buried ridge stripe 1.5 μm GaInAsP/InP laser-waveguide integration by a simplified process J p57
Renaud, M., Erman, M., Riglet, Ph., Jarry, Ph., Martin, B.G., Vinchant, J.F., and Cavaillès, J.A. see Erman, M.
Renfrew, A.C., and Karunadasa, J.P. see Karunadasa, J.P.
Rengarajan, S., Lier, E., and Rahmat-Samii, Y. see Lier, E.
Reynders, J.P., and Jandrell, I.R. see Jandrell, I.R.
Reynolds, J.H., Tarassenko, L., and Tombs, J.N. see Tarassenko, L.
Rice, R.E., Grady, W.M., Lesso, W.G., Noyola, A.H., and Connolly, M.E. Power generation scheduling through use of generalised network flow programming C p39
Rickard, D.A., Dupuy, J., and Waters, R.T. Verification of an alternating current corona model for use as a transmission line design aid A p250
Ridley, B.K., and Bishop, P.J. Laser-induced transient photoconductivity in MQW systems J p294
Riglet, Ph., Erman, M., Jarry, Ph., Martin, B.G., Renaud, M., Vinchant, J.F., and Cavaillès, J.A. see Erman, M.
Ripoche, G., Harari, J., Decoster, D., Vilcot, J.P., Kramer, B., Oguey, C., and Salsac, P. see Harari, J.
Rizkalla, M.E., Gundrum, H., and Michel, H. Design of a fractional phase locked-loop frequency synthesiser using a Motorola based microcontroller A p295
Robbins, D.J., Buus, J., Ragdale, C.M., and Reid, D.C.J. see Buus, J.
Robein, D., Remiens, D., Hornung, V., and Rose, B. see Remiens, D.
Roberts, D., Mellor, P.H., and Turner, D.R. see Mellor, P.H.
Roberts, J.S., Hansen, S.I., and Marsh, J.H. see Hansen, S.I.
Roberts, P.D., Lin, J., and Wang, M. see Lin, J.
Robinson, B.D., and Clarke, D.W. Robustness effects of a prefilter in generalised predictive control D p2
Robinson, G. Discharges in asymmetric cavities under AC stresses A p119
Robinson, M.J., and Williamson, S. see Williamson, S.
Rocha, J.R.F. da, and Gameiro, A.M.S. see Gameiro, A.M.S.
Rodriguez-Tellez, J. New nonlinear large-signal DC bipolar junction transistor model G p145
Rodriguez-Tellez, J., and Baloch, A.K. Evaluation of packaging strays in discrete semiconductor devices G p501
Roger, A., Farail, F., and Bouthinon, M. see Farail, F.
Roman, J., and Allan, R.N. see Allan, R.N.
Roncella, R., Saletti, R., Terreni, P., and Piatelli, D. Application of a systolic macrocell-based VLSI design style to the design of a single-chip high-performance FIR filter G p17
Rong, Y., Dou, W.-B., and Li, S.-F. Generalised field theory of irregular waveguide partially filled with longitudinally magnetised ferrite H p412
Rose, B., Remiens, D., Hornung, V., and Robein, D. see Remiens, D.
Rosenhouse, I., and Cory, H. see Cory, H.
Rossiter, J.A., Kouvaritakis, B., and Dunnett, R.M. Application of generalised predictive control to a boiler-turbine unit for electricity generation D p59
Roy, B.K., Bapat, V.N., and Saha, D.C. Influence of Poisson filter constant on estimation of continuous-time models D p586
Roy, S., Malik, O.P., and Hope, G.S. Adaptive control of plants using all-zero model for dead-time identification D 445
Ruan, Y.Z., and Feng, W.L. RCS calculation of open cavities by complex ray expansion F p397
Rubio, A., Sainz, J.A., and Kinoshita, K. Test pattern generation for logic crosstalk faults in VLSI circuits G p179
Russell, I.A.D., and Webb, P.W. see Webb, P.W.
Rust, D.J., Williams, L.D., Kirby, R.P., Summerfield, M.A., Astbury, S., and Lee, P.A. see Williams, L.D.
Ryum, B.R., and Abdel-Motaleb, I.M. Effect of recombination current on current gain of HBTs G p115

S

Sa'id, W.K., Krishnamurthi, V., and Al-Awad, N.A. see Krishnamurthi, V.
Saarinen, J., Tomberg, J., Vehmanen, L., and Kaski,

K. VLSI implementation of Tausworthe random number generator for parallel processing environment E p138
Sadiq, L., and Aghvami, A.H. Performance of an asynchronous hybrid spread spectrum system in the presence of interference, Rician fading and AWGN I p117
Saerens, M., and Soquet, A. Neural controller based on back-propagation algorithm F p55
Saffold, J.A., and Bruder, J.A. see Bruder, J.A.
Sagar, G., and Sarje, A.K. see Sarje, A.K.
Saha, D.C., Roy, B.K., and Bapat, V.N. see Roy, B.K.
Sainz, J.A., Rubio, A., and Kinoshita, K. see Rubio, A.
Saito, S., and Ohki, M. see Ohki, M.
Salam, Md-Sayeed, Hamdan, Abdul-Razak, and Nor, Khalid Mohamed Integrating an expert system into a thermal unit-commitment algorithm C p553
Saletti, R., Roncella, R., Terreni, P., and Piatelli, D. see Roncella, R.
Salgado, H.M., and O'Reilly, J.J. Volterra series analysis of distortion in semiconductor laser diodes J p379
Salsac, P., Harari, J., Decoster, D., Vilcot, J.P., Kramer, B., Oguey, C., and Ripoche, G. see Harari, J.
Sanada, T., Odagawa, T., Machida, T., Nakai, K., Wakao, K., and Yamakoshi, S. see Odagawa, T.
Sanchez, J.J., and DeMassa, T.A. Review of carrier injection in the silicon/silicon-dioxide system G p377
Sanchez, V.E., Peinado, A.M., Lopez, J.M., Segura, J.C., and Ayuso, A.J. Rubio see Peinado, A.M.
Sandler, M. Algorithm for high precision root finding from high order LPC models I p596
Sandler, M., and Ben-Tzvi, D. see Ben-Tzvi, D.
Sandler, M.B., Hayat, L., and Naqvi, A. see Hayat, L.
Sangalli, M., Canali, C., Magistrali, F., Paccagnella, A., Tedesco, C., and Zanoni, E. see Canali, C.
Sangster, A.J., Swan, A., and Livingston, E.P. Backward-wave suppression in a very wide-band helix travelling-wave tube using a slow waveguide filter H p79
Santos, H.A., and Fernandes, C.F. see Fernandes, C.F.
Sarje, A.K., and Sagar, G. Heuristic model for task allocation in distributed computer systems E p313
Sarkar, D., Mukherjee, P.K., and Sen, S.K. Use of 3-dimensional finite elements for computation of temperature distribution in the stator of an induction motor B p75
Sarkar, S., and Majumdar, A.K. Tagged systolic array E p289
Sarkar, S.K., Narayana Rao, D., Krishna Reddy, K., Ravi, K.S., Rao, S.V.B., Kesava Murthy, M.J., Dutta, H.N., and Reddy, B.M. see Narayana Rao, D.
Sarma, J., Middlemast, I., Shore, K.A., Kucharska, A.I., Fletcher, E.D., and Blood, P. see Middlemast, I.
Sasaki, G., Hayashi, H., Yano, H., Aga, K., and Kamei, H. see Hayashi, H.
Saul, P.H., Barber, W., Taylor, D.G., and Ward, T. Single chip 500 MHz function generator G p239
Sbarbaro, D., and Hunt, K.J. see Hunt, K.J.
Scattolini, R., Cofrancesco, P., and Cristoforetti, A. see Cofrancesco, P.
Scattolini, R., and Clarke, D.W. see Clarke, D.W.
Schemmann, M.F.C., Heyker, H.C., Kwaspen, J.J.M., and van de Roer, Th.G. Microwave impedance measurements on resonant tunnelling diodes and network model parameter extraction H p248
Schill, R.A., and Jiang, L. see Jiang, L.
Schirinzi, G., Alberti, G., Franceschetti, G., and Pascazio, V. see Alberti, G.
Schirinzi, G., Franceschetti, G., and Pascazio, V. see Franceschetti, G.
Schneider, C.R., Card, H.C., and Moore, W.R see Card, H.C.
Scholtz, A.L., Kreuzgruber, P., Bonek, E., and Österreicher, J. see Kreuzgruber, P.
Sebak, A., Helaly, A., and Shafai, L. see Helaly, A.
Seetharama Bhat, M., Sreenatha, A.G., and Shrivastava, S.K. Robust low order dynamic controller for flexible spacecraft D p460
Segura, J.C., Peinado, A.M., Lopez, J.M., Sanchez, V.E., and Ayuso, A.J. Rubio see Peinado, A.M.
Seki, S., Yamanaka, T., and Yokoyama, K. Two-dimensional analysis of optical waveguides with a nonuniform finite difference method J p123
Sen, S., and Datta, K.B. Eigenstructure assignment in high-gain feedback systems D p165
Sen, S.K., Sarkar, D., and Mukherjee, P.K. see Sarkar, D.
Seraji, F.E., and Pandian, G.S. see Pandian, G.S.
Serzhenko, F., and Shadrin, V. Optimisation threshold parameters of multiple quantum well infrared photodetector J p299
Seshadri, N., Wong, W.C., and Sundberg, C.-E.W. see Wong, W.C.
Sewell, J.I., Henderson, R.K., and Ping, Li see Henderson, R.K.
Shaaban, H. New decomposition-aggregation approach applied to power system with speed governor C p434
Shadrin, V., and Serzhenko, F. see Serzhenko, F.
Shafai, L., Helaly, A., and Sebak, A. see Helaly, A.
Shah, S.L., Shook, D.S., and Mohtadi, C. see Shook, D.S.
Shahidehpour, S.M., and Deeb, N.I. see Deeb, N.I.
Shahidehpour, S.M., and Nwankpa, C.O. see Nwankpa, C.O.
Shahidehpour, S.M., and Ouyang, Z. see Ouyang, Z.
Shahnawaz Ahmed, S., and Brameller, A. New algorithm for diakoptical static state estimation C p185
Shahzadi, B. Use of common factors in numerical synthesis of RLC one ports G p427
Shamsadeen, B.N., Turner, D.R., Binns, K.J., and Warne, D.F. see Turner, D.R.
Shaout, A., and Smyth, D. Performance estimation of semirandom data transfer within direct hypercube interconnection network E p213
Shapland, A.J., Pouladian-Kari, R., and Benson, T.M. see Pouladian-Kari, R.
Sharaf, T.A.M., and Berg, G.J. Probabilistic voltage stability indexes C p499
Shark, L.-K., Terrell, T.J., and Simpson, R.J. New high-speed adaptive frame synchronisers incorporating postdetection processing techniques I p269
Sharma, A.K., Dwivedi, R., and Srivastava, S.K. Performance analysis of a solar array under shadow condition G p301
Sharrif, Z.A.M., Othman, M., and Theong, T.S. Noise analysis for digit slicing FFT F p509
Sheikh, A.N.A. El, and Parker, E.A. see Parker, E.A.
Shen, X., and Momoh, J.A. see Momoh, J.A.
Shen, Y.-N., Koo, P., and Lombardi, F. see Koo, P.
Shepherd, T.J., Proudler, I.K., and McWhirter, J.G. see Proudler, I.K.
Sheshadri, T.S. MHD arcjet onset studies A p286
Shibata, J., Chino, T., Matsuda, K., and Adachi, H. see Chino, T.
Shibata, J., and Matsuda, K. see Matsuda, K.
Shieh, J.J., and Papachristou, C.A. Fine grain mapping strategy for multiprocessor systems E p109
Shieh, L.-S., Hwang, C., Guo, T.-Y., and Chen, C.-H. see Hwang, C.
Shieh, L.S., Zhao, X.M., and Sunkel, J.W. Hybrid state-space self-tuning control using dual-rate sampling D p50
Shih, C.-L., and Lee, T.-T. see Lee, T.-T.
Shih, M.T., Reed, I.S., and Truong, T.K. see Reed, I.S.
Shiloh, K., Som, A.K., and Bond, L.J. Characterisation of high frequency focused ultrasonic transducers using modulation transfer function: Concept and experimental approach A p205
Shimasaki, H., Tsutsumi, M., and Morgan, G.B. see Tsutsumi, M.
Shimmin, D.S., Taylor, S., Fang, M.T.C., and Jones, G.R. see Taylor, S.
Shimmin, D.W., Binns, K.J., and Al-Aubidy, K.M. see Binns, K.J.
Shin, B.S., Chung, Y.H., and Cho, G.H. see Chung, Y.H.
Shook, D.S., Mohtadi, C., and Shah, S.L. Identification for long-range predictive control D p75
Shore, K.A., Middlemast, I., Sarma, J., Kucharska, A.I., Fletcher, E.D., and Blood, P. see Middlemast, I.
Shore, K.A., and Wong, Y.C.A. see Wong, Y.C.A.
Shore, K.A., and Yee, W.M. Theory of self-locking FM operation in semiconductor lasers J p91
Shrivastava, S.K., Seetharama Bhat, M., and Sreenatha, A.G. see Seetharama Bhat, M.
Shukla, P.K., and Turner, L.F. Channel-estimation-based adaptive DFE for fading multipath radio channels I p525
Silvestro, J.W., Butler, C.M., Courtney, C.C., and Mannikko, P.D. see Butler, C.M.
Simaan, M., and Yousef, H. see Yousef, H.
Simkin, D., Pitman, K.C., Lindley, M.W., and Cooper, J.F. see Pitman, K.C.
Simmonds, A.J. Electro-rheological valves in a hydraulic circuit D p400
Simpson, R.J., Shark, L.-K., and Terrell, T.J. see Shark, L.-K.
Singh, S., and Mannaa, H.M. Analysis of infinite periodic array of thin wire radiators with dielectric loading H p207
Siri, K., Lee, C.Q., and Fang, S.J. see Lee, C.Q.
Siu, W.-C., and Lun, D.P.-K. see Lun, D.P.-K.
Siu, W.C., and Chan, R. see Chan, R.
Skavantzos, A. Novel approach for implementing convolutions with small tables E p255
Skettrup, T., Jensen, B., Jacobsen, G., Bødtker, E., and Christensen, B. see Jensen, B.
Skinner, I.M., Ladouceur, F., and Love, J.D. see Ladouceur, F.
Skrimshire, C.P., Learmouth, M.D., Hewett, N.P., and Reid, I. High reliability photodetector with integral bandpass filter for receivers in passive optical networks J p191
Sloan, R., Gibson, A.A.P., Davis, L.E., and Paul, D.K. see Gibson, A.A.P.
Smith, F., Birbas, A.N., Brunn, B., van Rheenen, A.D., Gopinath, A., and Chen, C.L. see Birbas, A.N.
Smith, J.S., Corlett, B.J., and Lucas, J. see Corlett, B.J.
Smith, M.M., Powell, R.S., Irving, M.R., and Sterling, M.J.H. Robust algorithm for state estimation in electrical networks C p283
Smith, M.S., and Maddocks, M.C.D. see Maddocks, M.C.D.
Smith, P.A., and Davis, L.E. see Davis, L.E.
Smith, R., Nutt, H.C., and Board, K. see Nutt, H.C.
Smyth, D., and Shaout, A. see Shaout, A.
Snethen, T.J., Debany, W.H., and Hartmann, C.R.P. see Debany, W.H.
Sobocki, R. Function representation of lightning impulses produced by a testing circuit with continuity of voltages and currents at a tested object A p78
Sodin, L.G., and Kopilovich, L.E. see Kopilovich, L.E.
Soga, H., Nakano, H., Honma, T., and Yamauchi, J. see Nakano, H.
Som, A.K., Shiloh, K., and Bond, L.J. see Shiloh, K.
Somasekhar Rao, P.V.D., and Das, B.N., see Das, B.N.
Song, E.H., and Kwon, B.H. see Kwon, B.H.
Song, I., and Uhm, T.S. Multiplicative noise model and composite signal detection F p531
Sood, V.K., and Gole, A.M. Minimisation of ununcharacteristic harmonics in HVDC convertors through firing angle modulation C p567
Sooksatra, S., and Lee, C.Q. see Lee, C.Q.
Soquet, A., and Saerens, M. see Saerens, M.
Soudack, A.C., and Marti, J.R. see Marti, J.R.
Sparaggis, P.D., and Anagnostou, M.E. see Anagnostou, M.E.
Spenuk, M., Wu, K.-L., Litva, J., and Fang, D.-G. see Wu, K.-L.
Spiazzi, G., Pavan, P., Zanoni, E., Muschitiello, M., and Cecchetti, M. see Pavan, P.
Spooner, E., and Zuncheng, Z. see Zuncheng, Z.
Spray, A., and Jones, S. PACE: A regular array for implementing regularly and irregularly structured algorithms G p613
Sreenatha, A.G., Seetharama Bhat, M., and Shrivastava, S.K. see Seetharama Bhat, M.
Sreeram, V., and Agathoklis, P. New bound for the stability margin of linear continuous systems D p151
Sreeram, V., and Agathoklis, P. Solution of the Lyapunov equation with system matrix in companion form D p529
Sridharan, S., Dawson, E., and Goldburg, B. Fast Fourier transform based speech encryption system I p215
Srivastava, A. Switching properties of polysilicon emitter transistor operating in saturation G p358
Srivastava, S.K., Sharma, A.K., and Dwivedi, R. see Sharma, A.K.
Srivastava, V., and Carter, R.G. Design of phase velocity tapers in coupled-cavity TWTs H p469
Srivastava, V., and Carter, R.G. Determination of sever positions in coupled-cavity TWTs H p55
Stafylopatis, A., and Gelenbe, E. Synchronisation in parallel processing of finite sequences E p329
Steele, R., Webb, W.T., and Hanzo, L. see Webb, W.T.
Steele, R., and Lam, W.H. see Lam, W.H.
Steele, R., and Webb, W.T. see Webb, W.T.
Stefan Johansson, F. Frequency-scanned reflection gratings consisting of ring patches H p273
Stepanenko, Y., and Yuan, J. Model reference control of nonlinear plants with uncertain and unbounded terms D p535
Sterling, M.J.H., Smith, M.M., Powell, R.S., and Irving, M.R. see Smith, M.M.
Stern, M.S. Rayleigh quotient solution of semivectorial field problems for optical waveguides with arbitrary index profiles J p185
Stewart, W.J., Love, J.D., Henry, W.M., Black, R.J., Lacroix, S., and Gonthier, F. see Love, J.D.
Stoffels, C., and Lier, E. see Lier, E.
Stoll, R.L., Tampion, A.A., and Sybulski, J.K. see Tampion, A.A.
Stoll, R.L., and Abbas, N.A.M. Measurement of eddy-current damping of small synchronous generator with two types of cylindrical solid rotor C p199
Strum, A., and Bar-Lev, A. Design of a multimesa Impatt diode array optimised for maximum heat dissipation G p198
Su, Ching-Chuan Analysis of TEM cells using the finite-difference technique and the conjugate gradient method H p261
Su, S.-L., and Wu, J.-M. see Wu, J.-M.
Su, Y., Sunder, S., Lu, W.-S., and Antoniou, A. see Sunder, S.
Subramanian, S., Chaudhury, S., and Parthasarathy, G. see Chaudhury, S.
Suckley, D. Genetic algorithm in the design of FIR filters G p234
Sugimoto, M., Kurihara, K., Tashiro, Y., Ogura, I., and Kasahara, K. see Kurihara, K.
Summerfield, M.A., Williams, L.D., Kirby, R.P., Rust, D.J., Astbury, S., and Lee, P.A. see Williams, L.D.
Sun, C.-Y., Liu, W.-C., and Lour, W.-S. see Liu, W.-C.
Sun, S.Q., and Jiang, C.G. Decomposition of Czarnecki's reactive current and reactive power B p125
Sun, S.Q., and Kiyokawa, H. Decomposition of voltage, current and power B p35

Sundaresan, H., Hale, W.B., Henning, I.D., and Mellis, J. see Hale, W.B.
Sundberg, C.-E.W., Wong, W.C., and Seshadri, N. see Wong, W.C.
Sunder, S., Lu, W.-S., Antoniou, A., and Su, Y. Design of digital differentiators satisfying prescribed specifications using optimisation techniques **G** p315
Sunkel, J.W., Shieh, L.S., and Zhao, X.M. see Shieh, L.S.
Suto, K., Kimura, T., and Nishizawa, J. Semiconductor Raman laser with resonator film transparent to pump light **J** p396
Suykens, J., and Vandewalle, J. Quasilinear approach to nonlinear systems and the design of n-double scroll ($n = 1, 2, 3, 4, \ldots$) **G** p595
Svensson, A. Reduced state sequence detection of partial response continuous phase modulation **I** p256
Swan, A., Sangster, A.J., and Livingston, E.P. see Sangster, A.J.
Swords, S.S., Fannin, P.C., Molina, A., and Cullen, P.J. see Fannin, P.C.
Sybulski, J.K., Tampion, A.A., and Stoll, R.L. see Tampion, A.A.
Szaniawski, W., Henderson, I.A., McGhee, J., and Domaradzki, P. see Henderson, I.A.

T

Takao, K., and Boon, C.S. Two-mode adaptive beamformer using a systolic array **F** p483
Tam, W.-Y., and Luk, K.-M. see Luk, K.-M.
Tam, W.-Y., and Luk, K.-M. Far field analysis of spherical-circular microstrip antennas by electric surface current models **H** p98
Tampion, A.A., Stoll, R.L., and Sybulski, J.K. Variation of turbogenerator stator core vibration with load **C** p389
Tang, C.K.K., and Mars, P. Stochastic learning automata and adaptive IIR filters **F** p331
Tang, C.K.K., and Turner, D.R. Modelling of large nonlinear loads and thyristor controlled shunt compensators **C** p505
Tarassenko, L., Tombs, J.N., and Reynolds, J.H. Neural network architectures for content-addressable memory **F** p33
Tashiro, Y., Kurihara, K., Ogura, I., Sugimoto, M., and Kasahara, K. see Kurihara, K.
Tattersall, G.D., Foster, S., and Johnston, R.D. Single-layer lookup perceptrons **F** p46
Taylor, D.G., Saul, P.H., Barber, W., and Ward, T. see Saul, P.H.
Taylor, S., Fang, M.T.C., Jones, G.R., and Shimmin, D.S. Current zero flow conditions in a circuit breaker-nozzle **A** p259
Tchah, K.H., and Lee, S.B. see Lee, S.B.
Tedesco, C., Canali, C., Magistrali, F., Paccagnella, A., Sangalli, M., and Zanoni, E. see Canali, C.
Terrell, T.J., Shark, L.-K., and Simpson, R.J. see Shark, L.-K.
Terreni, P., Roncella, R., Saletti, R., and Piatelli, D. see Roncella, R.
Tesi, A., and Genesio, R. see Genesio, R.
Tham, M.T., Vagi, F., Morris, A.J., and Wood, R.K. Multivariable and multirate self-tuning control: a distillation column case study **D** p9
Tham, M.T., Willis, M.J., Di Massimo, C., Montague, G.A., and Morris, A.J. see Willis, M.J.
Thanailakis, A., Tsalides, Ph., and York, T.A. see Tsalides, Ph.
Thanner, C., Lang, H., Wolf, H.D., Korte, L., Hedrich, H., and Hoyler, C. see Lang, H.
Theong, T.S., Sharrif, Z.A.M., and Othman, M. see Sharrif, Z.A.M.
Thorburn, M., Luo, S., and Tripathi, V.K. see Luo, S.
Thurlow, A.R., Lynch, T.G., MacBean, M.D.A., and Walling, R.H. see Lynch, T.G.
Tielking, J.T., Masrur, M.A., and Ayoub, A.K. see Masrur, M.A.
Tijhuis, A.G., and Peng, Z.Q. Marching-on-in-frequency method for solving integral equations in transient electromagnetic scattering **H** p347
Tinkler, D., Cronin, N.J., and Athamena, N. see Cronin, N.J.
Titze, W., Benjamin, R., Brennan, P.V., and Griffiths, H.D. see Benjamin, R.
Tleis, A.N.D., and Cornick, K.J. see Cornick, K.J.
Togneri, R., Alder, M.D., and Attikiouzel, Y. see Alder, M.D.
Tokhi, M.O., and Leitch, R.R. Design and implementation of self-tuning active noise control systems **D** p421
Tomberg, J., Saarinen, J., Vehmanen, L., and Kaski, K. see Saarinen, J.
Tombs, J.N., Tarassenko, L., and Reynolds, J.H. see Tarassenko, L.
Tonkin, S.P., and McCulloch, R.A. Gross spatial structure of land clutter **F** p99
Torrey, D.A., and Lang, J.H. Optimal-efficiency excitation of variable-reluctance motor drives **B** p1
Towers, M.S., Byrne, D.J., and Board, K. see Byrne, D.J.
Towill, D.R. Address as Chairman of the IEE Management & Design Division: Engineering change; or is it change engineering? A personal perspective **A** p11
Tozune, A. Balanced operation of three-phase induction motor with asymmetrical stator windings connected to single-phase supply system **B** p167
Tozune, A. Vibration characteristics of motors with dynamic absorbers **B** p21
Trachtenberg, E.A., and Varma, D. see Varma, D.
Tran, T.V., and McCowen, A. see McCowen, A.
Tretyakov, S.A., Oksanen, M.I., and Hänninen, J. see Oksanen, M.I.
Tripathi, V.K., Luo, S., and Thorburn, M. see Luo, S.
Tripathy, S.C., Balasubramanian, R., and Chandramohanan Nair, P.S. Small rating capacitive energy storage for dynamic performance improvement of automatic generation control **C** p103
Truong, T.K., Reed, I.S., and Shih, M.T. see Reed, I.S.
Tsai, C.-C., Chen, S.-J., Hsiao, P.-Y., and Feng, W.-S. New iterative construction approach to routing with compacted area **E** p57
Tsai, C.-C., and Hsiao, P.-Y. see Hsiao, P.-Y.
Tsalides, Ph., Marriott, A.P., and Hicks, P.J. see Marriott, A.P.
Tsalides, Ph., York, T.A., and Thanailakis, A. Pseudorandom number generators for VLSI systems based on linear cellular automata **E** p241
Tsao, H.-W., Liu, S.-I., and Wu, J. see Liu, S.-I.
Tseng, W.-L., and Huang, H.-P. see Huang, H.-P.
Tsui, J.B.Y., and McCormick, W.S. see McCormick, W.S.
Tsutsumi, M., Shimasaki, H., and Morgan, G.B. Optical control of wave propagation in microstrip-slot lines at D band **H** p527
Tsutsumi, M., and Alphones, A. see Alphones, A.
Tuovinen, J., Lehto, A., and Räisänen, A. see Lehto, A.
Tuovinen, J., Lehto, A., and Räisänen, A. Phase measurements of millimetre wave antennas at 105–190 GHz with a novel differential phase method **H** p114
Turchetti, C., and Conti, M. General approach for development of CAD-oriented analytical device models **G** p637
Turkmani, A.M.D. Performance evaluation of a composite microscopic plus macroscopic diversity system **I** p15
Turkmani, A.M.D., Demery, D.A., and Parsons, J.D. Measurement and modelling of wideband mobile radio channels at 900 MHz **I** p447
Turkmani, A.M.D., Parsons, J.D., and Demery, D.A. see Parsons, J.D.
Turkmani, A.M.D., and Parsons, J.D. see Parsons, J.D.
Turkmani, A.M.D., and Parsons, J.D. Characterisation of mobile radio signals: base station cross-correlation **I** p557
Turkmani, A.M.D., and de Toledo, A.F. Radio transmission at 1800 MHz into, and within, multistorey buildings **I** p577
Turner, D.R., Binns, K.J., Shamsadeen, B.N., and Warne, D.F. Accurate measurement of induction motor losses using balance calorimeter **B** p233
Turner, D.R., Mellor, P.H., and Roberts, D. see Mellor, P.H.
Turner, D.R., and Tang, C.K.K. see Tang, C.K.K.
Turner, L.F., and Manikas, A.N. see Manikas, A.N.
Turner, L.F., and Shukla, P.K. see Shukla, P.K.
Turowski, M., and Lisik, Z. see Lisik, Z.
Turton, R.J., and Jaros, M. Linear and nonlinear optical properties of direct gap Si–Ge superlattices **J** p323

U

Udpa, L., and Udpa, S.S. Neural networks for the classification of nondestructive evaluation signals **F** p41
Udpa, S.S., and Udpa, L. see Udpa, L.
Uhm, T.S., and Song, I. see Song, I.
Ullo, S.L., Conte, E., Longo, M., and Lops, M. see Conte, E.
Umeda, H. Method of optimum oscillator design using power-dependent S-parameters **G** p533

V

Vagi, F., Tham, M.T., Morris, A.J., and Wood, R.K. see Tham, M.T.
Vaidis, T.C., Capsalis, C.N., and Cottis, P.G. see Capsalis, C.N.
Valenzano, A., Montuschi, P., and Ciminiera, L. Systolic accelerator for parametric surface modelling **E** p223
Vallee, R.E., and El-Masry, E.I. Novel CMOS operational amplifier design technique for high-frequency switched-capacitor applications **G** p623
Van de roer, Th.G., Schemmann, M.F.C., Heyker, H.C., and Kwaspen, J.J.M. see Schemmann, M.F.C.
Van 't Klooster, K., Cao, C., Van Lil, E., and Van de Capelle, A. see Cao, C.
Van Lil, E., Cao, C., Van de Capelle, A., and Van 't Klooster, K. see Cao, C.
van Rheenen, A.D., Birbas, A.N., Brunn, B., Gopinath, A., Chen, C.L., and Smith, F. see Birbas, A.N.
van Sinttruyen, J.S., Niemeijer, R.J., and Ligthart, L.P. see Niemeijer, R.J.
Van de Capelle, A., Cao, C., Van Lil, E., and Van 't Klooster, K. see Cao, C.
Van de Vegte, J. Sequential design of multivariable control systems **D** p103
van den Heuvel, W.M.C., and Kersten, W.F.J. see Kersten, W.F.J.
Vandewalle, J., and Suykens, J. see Suykens, J.
Varlow, B.R., and Auckland, D.W. see Auckland, D.W.
Varma, D., and Trachtenberg, E.A. Computation of Reed-Muller expansions of incompletely specified Boolean functions from reduced representations **E** p85
Vaseghi, S.V. Finite state CELP for variable rate speech coding **I** p603
Vecchiotti, E., Bottauscio, O., Crotti, G., and Farina, G. see Bottauscio, O.
Vega, P., Prada, C., and Aleixandre, V. Self-tuning predictive PID controller **D** p303
Vehmanen, L., Saarinen, J., Tomberg, J., and Kaski, K. see Saarinen, J.
Venkateswarlu, T., Eswaran, C., and Antoniou, A. Design of circularly symmetric two- and three-dimensional digital filters using the concept of the GIC **G** p523
Vescovo, R. Electromagnetic scattering from bodies symmetric with respect to mutually orthogonal planes **H** p361
Vetterlein, S.J., and Hall, P.S. Multiple beam microstrip patch array with integrated beamformer **H** p176
Viarouge, P., Kamwa, I., and Dickinson, E.J. see Kamwa, I.
Vilcot, J.P., Harari, J., Decoster, D., Kramer, B., Oguey, C., Salsac, P., and Ripoche, G. see Harari, J.
Villablanca, M., and Arrillaga, J. see Arrillaga, J.
Villablanca, M.E., and Arrillaga, J. see Arrillaga, J.
Vinchant, J.F., Erman, M., Riglet, Ph., Jarry, Ph., Martin, B.G., Renaud,, M., and Cavaillès, J.A. see Erman, M.
Vlach, J., and Bedrosian, D.G. see Bedrosian, D.G.
Vourdas, A., Liu, Z.J., and Binns, K.J. see Liu, Z.J.

W

Wade, G., and Lau, K.S. see Lau, K.S.
Wait, J.R. Electromagnetic surface impedance of an anisotropic cylinder **A** p184
Wakao, K., Odagawa, T., Machida, T., Sanada, T., Nakai, K., and Yamakoshi, S. see Odagawa, T.
Walling, R.H., Lynch, T.G., MacBean, M.D.A., and Thurlow, A.R. see Lynch, T.G.
Wang, C.M., Zhu, L.D., Xiong, F.K., Chen, Z.H., Hsie, Y.L., Feak, G.A.B., and Ballantyne, J.M. see Zhu, L.D.
Wang, C.T., Liaw, C.M., Chen, T.H., Wang, T.C., Cho, G.J., and Lee, C.M. see Liaw, C.M.
Wang, H-C., Liu, L-C., Lee, L-M., and Chang, Y-C. see Liu, L-C.
Wang, H., and Jones, A.H. Rule based identifier for unknown systems **D** p500
Wang, M., Lin, J., and Roberts, P.D. see Lin, J.
Wang, T.C., Liaw, C.M., Chen, T.H., Cho, G.J., Lee, C.M., and Wang, C.T. see Liaw, C.M.
Ward, T., Saul, P.H., Barber, W., and Taylor, D.G. see Saul, P.H.
Warne, D.F., Turner, D.R., Binns, K.J., and Shamsadeen, B.N. see Turner, D.R.
Warner, D.J., Pickering, K.L., Pedder, D.J., Buck, B.J., and Pike, S.J. Flip chip-bonded GaAs MMICs compatible with foundry manufacture **H** p74
Warrington, E.M., and Jones, T.B. Measurements of the direction of arrival of HF sky wave signals and single site location using a seven element wide aperture (294 m) interferometer array **H** p121
Warwick, K. Editorial: Self-tuning control **D** p1
Warwick, K., Zhu, Q.M., and Douce, J.L. see Zhu, Q.M.
Watanabe, M., Itoh, H., Mukai, S., Mori, M., and Yajima, H. see Itoh, H.
Watanabe, M., Mukai, S., Itoh, H., and Yajima, H. see Mukai, S.
Waters, R.T., Rickard, D.A., and Dupuy, J. see Rickard, D.A.
Waters, R.T., and Harid, N. see Harid, N.
Watts, S. Radar clutter and multipath propagation **G** p73
Webb, A.R. Point-source location using a millimetre wave focal-plane array radar **F** p581
Webb, A.R., and Lowe, D. see Lowe, D.
Webb, P.W. Thermal imaging of electronic devices with low surface emissivity **G** p390
Webb, P.W., and Hann, R.A. Measurement of thermal transients in a thermal print head used for dye diffusion colour printing **A** p98
Webb, P.W., and Russell, I.A.D. Thermal simulation of transients in microwave devices **G** p329
Webb, W.T., Hanzo, L., and Steele, R. Bandwidth efficient QAM schemes for Rayleigh fading channels **I** p169
Webb, W.T., and Nichols, K.G. Microprocessor design using silicon compiler **E** p232
Webb, W.T., and Steele, R. Equaliser techniques for QAM transmissions over dispersive mobile radio channels **I** p566
Wei, C.-H., and Guu, J.-A. see Guu, J.-A.

Wei, J.N., and Lu, K.S. see Lu, K.S.
Wells, G., and Kumar, S. see Kumar, S.
Wellstead, P.E., Fernandez del Busto, R., and Zarrop, M.P. see Fernandez del Busto, R.
Wendel, H., Herdeg, W.F., and Fuchs, U. see Herdeg, W.F.
Weng, C.-M., and Hwang, C.-T. Distributed double-phase switch I p417
Weng, C.-M., and Li, J.-J. Solution for packet switching of broadband ISDN I p394
Wengang, Che, Yanda, Li, and Yue, Jiao Systolic realisation for 2-D convolution using configurable functional method in VLSI parallel array designs E p361
Wenyuan, L., and Billinton, R. see Billinton, R.
Westwater, E.R., Fionda, E., and Falls, M.J. see Fionda, E.
Whalley, R. Agile computer control and surveillance systems D p185
White, I.H., Nyairo, K.O., Kirkby, P.A., and Armistead, C.J. see Nyairo, K.O.
White, I.H., and Davison, A.S. see Davison, A.S.
White, I.H., and Lomax, A.M. see Lomax, A.M.
Wilcox, D.J. Theory of transformer modelling using modal analysis C p121
Wilkin, D.J., Harrison, I., and Woolfson, M.S. Target tracking algorithms for phased array radar F p255
Wilkinson, B. Multiple bus network with overlapping connectivity E p281
Wilkinson, R.H. High-fidelity finite-impulse-response filters with optimal stopbands G p264
Williams, B.W., and Green, T.C. Steady-state control of an induction motor by estimation of stator flux magnitude B p69
Williams, L.D., Kirby, R.P., Summerfield, M.A., Rust, D.J., Astbury, S., and Lee, P.A. Millimetre-wave backscatter from desert terrain F p93
Williamson, A.G., and Barry, P.J. see Barry, P.J.
Williamson, S., and Robinson, M.J. Calculation of cage induction motor equivalent circuit parameters using finite elements B p264
Willis, M.J., Di Massimo, C., Montague, G.A., Tham, M.T., and Morris, A.J. Artificial neural networks in process engineering D p256
Wilson, A. Slot discharge damage in air cooled stator windings A p153
Wilson, G., and Chan, P.K. Comparison of four CMOS transconductors for fully integrated analogue filter applications G p683
Winton, R.S., Wong, W.W., and Liou, J. see Wong, W.W.
Withington, S., and Kennedy, P. Numerical procedure for simulating the large-signal quantum behaviour of superconducting tunnel-junction circuits G p70
Wolf, H.D., Lang, H., Korte, L., Hedrich, H., Hoyler, C., and Thanner, C. see Lang, H.
Wong, J.S.L., Chow, M.H.L., and Lee, Y.S. see Chow, M.H.L.
Wong, J.S.L., Lee, Y.S., and Chow, M.H.L. see Lee, Y.S.
Wong, K.-L. Electromagnetic interference of a plane wave incident on superstrate-loaded microstrip circuits H p455
Wong, K.P., and Doan, K. Artificial intelligence algorithm for daily scheduling of thermal generators C p518
Wong, K.T., and Barnes, R. see Barnes, R.
Wong, T.T.Y., and Aly, M.S. see Aly, M.S.
Wong, W.C., Seshadri, N., and Sundberg, C.-E.W. Estimation of unreliable packets in subband coding of speech I p43
Wong, W.W., Winton, R.S., and Liou, J. Statistical and numerical method for MOSFET integrated-circuit sensitivity simulation using SPICE G p77
Wong, Y.-C., Chang, C.-N., and Chen, C.H. see Chang, C.-N.
Wong, Y.C.A., and Shore, K.A. Influence of nonlinear gain on intrinsic bandwidth of quantum well and strained layer semiconductor lasers J p413
Wood, R.K., Tham, M.T., Vagi, F., and Morris, A.J. see Tham, M.T.
Woods, R.C. Design of surface-acoustic wave devices A p181
Woolfson, M.S., Wilkin, D.J., and Harrison, I. see Wilkin, D.J.
Wouterse, J.H. Critical torque and speed of eddy current brake with widely separated soft iron poles B p153
Woźniak, P., and Kuźmiński, K. Feedback stabilisation of synchronous generator by extended linearisation D p363
Wu, C., Wu, K.-L., Litva, J., and Fralich, R. see Wu, K.-L.

Addresses

Jones, D.A. President's Inaugural address: Electrical engineering; the backbone of society A p1
Overshott, K.J. Address as the Chaiman of the IEE Science Education & Technology Division: Magnetism; it is permanent A p22
Towill, D.R. Address as Chairman of the IEE Management & Design Division: Engineering change; or is it change engineering? A personal perspective A p11

Wu, C.-J., and Lee, Y.-S. see Lee, Y.-S.
Wu, C.-J., and Lee, Y.-S. Damping of synchronous generator by static reactive power compensator with digital controller C p427
Wu, C.-Y., and Hwang, J.-S. see Hwang, J.-S.
Wu, J., Liu, S.-I., and Tsao, H.-W. see Liu, S.-I.
Wu, J., and Kao, M.-S. see Kao, M.-S.
Wu, J.-L., Hsu, S.-H., and Duh, W.-J. Two-stage convolver-based DCT and IDCT algorithms I p611
Wu, J.-M., and Su, S.-L. Combination of block-coded modulation and trellis-coded modulation I p381
Wu, K.-L., Litva, J., Fralich, R., and Wu, C. Full wave analysis of arbitrarily shaped line-fed microstrip antennas using triangular finite-element method H p421
Wu, K.-L., Spenuk, M., Litva, J., and Fang, D.-G. Theoretical and experimental study of feed network effects on the radiation pattern of series-fed microstrip antenna arrays H p238
Wu, S.-Q., Yu, D.-Y., and Li, L.-M. see Yu, D.-Y.
Wu, T.-C., and Chang, C.-C. see Chang, C.-C.
Wu, X.W., and Chen, X.X. Algebra system for ECL circuits G p679
Wu, Y.-C., and Chern, T.-L. see Chern, T.-L.
Wu, Z., Gong, J., Jayasundere, N.D., and MacLean, T.S.M. see Gong, J.

X

Xiangquan, Shi, Guosui, Liu, Jimhui, Lu, Guoyu, Yang, and Yaoliang, Song see Guosui, Liu
Xie, L., and de Souza, C.E. Robust H_∞ control for class of uncertain linear time-invariant systems D p479
Xiong, F.K., Zhu, L.D., Wang, C.M., Chen, Z.H., Hsie, Y.L., Feak, G.A.B., and Ballantyne, J.M. see Zhu, L.D.
Xu, G.Y., and Zhu, J.Z. see Zhu, J.Z.
Xu, Y. Implementation of Berlekamp–Massey algorithm without inversion I p138
Xu, Y., Bosisio, R.G., and Bose, T.K. Some calculation methods and universal diagrams for measurement of dielectric constants using open-ended coaxial probes H p356

Y

Yajima, H., Itoh, H., Mukai, S., Watanabe, M., and Mori, M. see Itoh, H.
Yajima, H., Mukai, S., Watanabe, M., and Itoh, H. see Mukai, S.
Yamakoshi, S., Odagawa, T., Machida, T., Sanada, T., Nakai, K., and Wakao, K. see Odagawa, T.
Yamanaka, T., Seki, S., and Yokoyama, K. see Seki, S.
Yamashita, K., and Miyagi, H. Multivariable self-tuning regulator for load frequency control system with interaction of voltage on load demand D p177
Yamauchi, J., Nakano, H., Soga, H., and Honma, T. see Nakano, H.
Yamazaki, K., Aly, S., and Falconer, D. Convergence behaviour of a jointly adaptive transversal and memory-based echo canceller F p361
Yan, Z.X., and Deen, M.J. Physically-based method for measuring the threshold voltage of MOSFETs G p351
Yanda, Li, Wengang, Che, and Yue, Jiao see Wengang, Che
Yang, C.-C., and Hsu, Y.-Y. see Hsu, Y.-Y.
Yang, J.C.S., Yang, T.-C., and Kudva, P. see Yang, T.-C.
Yang, J.J., Chow, Y.L., and Fang, D.G. Discrete complex images of a three-dimensional dipole above and within a lossy ground H p319
Yang, N., Huang, Y., Lin, S., and Harrington, R.F. see Huang, Y.
Yang, T.-C., Yang, J.C.S., and Kudva, P. Adaptive control of a single-link flexible manipulator with unknown load D p153
Yang, T.C., and Lo, H.-Y. see Lo, H.-Y.
Yang, W., Zhang, M., and Li, L. see Zhang, M.
Yang, X., and Arvas, E. Use of frequency-derivative information in two-dimensional electromagnetic scattering problems H p269
Yano, H., Hayashi, H., Aga, K., Kamei, H., and Sasaki, G. see Hayashi, H.
Yaoliang, Song, Guosui, Liu, Xiangquan, Shi, Jimhui, Lu, and Guoyu, Yang see Guosui, Liu
Yasaka, H., Mikami, O., Noguchi, Y., Magari, K., and Kondo, S. see Mikami, O.
Yassine, H.M., and Moore, W.R. Improved mixed-radix conversion for residue number system architectures G p120
Yee, W.M., and Shore, K.A. see Shore, K.A.
Yeh, C.-C., and Chang, L. see Chang, L.
Yip, G.L., and Nikolopoulos, J. Characterisation of proton-exchanged and annealed proton-exchanged planar waveguides in z-cut $LiNbO_3$ J p389
Yoganandam, Y., and Jitendra Das, R. Performance analysis of a noncoherent monopulse processor in the presence of target glint and receiver imbalances F p445
Yokoyama, K., Seki, S., and Yamanaka, T. see Seki, S.
Yongaçoğlu, A., Makrakis, D., and Feher, K. see Makrakis, D.
York, T.A., Tsalides, Ph., and Thanailakis, A. see Tsalides, Ph.
Youn, M.J., Lee, D.S., Kim, M.G., and Kim, H.K. see Lee, D.S.
Young, P.C., Chotai, A., and Behzadi, M.A. see Chotai, A.
Young, S.J. Competitive training: a connectionist approach to the discriminative training of hidden Markov models I p61
Yousef, H., and Simaan, M. Model reference adaptive control for large scale systems with application to power systems D p321
Yu, D.-Y., Wu, S.-Q., and Li, L.-M. Design of partial response data transmission filters with specified stopband attenuation G p347
Yu, Feng-Peng, and Chen, Yuan-Hwang see Chen, Yuan-Hwang
Yuan, J., and Chen, C.S. Correlation decoding of the (24, 12) Golay code using neural networks I p517
Yuan, J., and Stepanenko, Y. see Stepanenko, Y.
Yuan, J.S., and Liou, J.J. see Liou, J.J.
Yue, Jiao, Wengang, Che, and Yanda, Li see Wengang, Che

Z

Zaghloul, M.E., and Gobovic, D. Fault simulation in CMOS VLSI circuits E p203
Zalzala, A.M.S., and Morris, A.S. Distributed robot control on transputer network E p169
Zanoni, E., Canali, C., Magistrali, F., Paccagnella, A., Sangalli, M., and Tedesco, C. see Canali, C.
Zanoni, E., Pavan, P., Spiazzi, G., Muschitiello, M., and Cecchetti, M. see Pavan, P.
Zapata, E.L., Argüello, F., and Doallo, R. see Argüello, F.
Zarrop, M.B., Fernandez del Busto, R., and Wellstead, P.E. see Fernandez del Busto, R.
Zehentner, J. TEM wave current distribution on two coaxial arc strips H p277
Zein, N.F., and Chambers, W.G. Serial acquisition in a 16 khop/s fast-frequency-hop system I p141
Zhang, C.N., and Cheng, H.D. High-speed single error correcting convertor for residue number processing E p177
Zhang, M., Yang, W., and Li, L. New method of constructing the projection matrix for array processing in single snapshot case F p407
Zhao, W., and Lim, C.C. see Lim, C.C.
Zhao, X.M., Shieh, L.S., and Sunkel, J.W. see Shieh, L.S.
Zheng, W.-X., and Feng, C.-B. see Feng, C.-B.
Zhong-xuan Zhou, J. Second-order switched capacitor building block and its application to the design of silicon efficient filters G p9
Zhou, H., and Clarricoats, P.J.B. see Clarricoats, P.J.B.
Zhu, J.Z., and Xu, G.Y. Approach to automatic contingency selection by reactive type performance index C p65
Zhu, L.D., Xiong, F.K., Wang, C.M., Chen, Z.H., Hsie, Y.L., Feak, G.A.B., and Ballantyne, J.M. GaAs/GaAlAs graded index separate confinement single quantum well single-mode waveguide electroabsorption light modulator J p313
Zhu, Q.M., Warwick, K., and Douce, J.L. Adaptive general predictive controller for nonlinear systems D p33
Zolghadr, F., and Honary, B. Digital matched-correlator automatic gain control scheme applicable to MFSK modems I p123
Zoltowski, M.D., and Lee, T.-S. Bisector angle estimation in a nonsymmetric multipath radar scenario F p559
Zuncheng, Z., and Spooner, E. High-speed reluctance machines with mixed-pole windings B p257

Lectures

Hawley, R. 33rd Hunter Memorial Lecture: The challenge to UK power engineers C p173

Book reviews

Analogue and digital signal processing and coding P.M. Grant, C.F.N. Cowan, B. Mulgrew and J.H. Dripps F p592

IEE commissioned reviews

Kibble, B.P. Present state of the electrical units A p187

Acoustics (*see* Acoustoelectric effects and Sound broadcasting and audio)
Acoustoelectric effects
Active networks
Actuators (*see* Transducers)
Adaptive control
Algebra (incl. Matrix algebra) (*see* Mathematical techniques)
Algorithms (*see* Mathematical techniques)
Amplifiers
Analogue computers and computation
Analogue-digital conversion
Antennas
Antennas (active)
Antennas (adaptive)
Antennas (aperture)
Antennas (arrays)
Antennas (dipole)
Antennas (frequency inpendent)
Antennas (horns and feeds)
Antennas (measurements)
Antennas (microstrip)
Antennas (millimetre wave)
Antennas (reflectors)
Antennas (slot)
Antennas (theory)
Antennas (time domain)
Antennas (travelling wave)
Antennas (wire)
Arcing
Attenuators (*see* Instrumentation and measuring science)
Audio (*see* Sound broadcasting and audio)
Avionics
Batteries and cells
Biological effects
Biomass
Biomedical applications
Bipolar transistors
Boolean algebra (*see* Logic)
Breakdown and gas discharges
Cables and overhead lines (*see* Coaxial cables)
Calibration (*see* Instrumentation and measuring science)
Charge-coupled devices
Choppers (*see* Control equipment and applications)
Circuit breakers and circuit breaking
Circuit theory and design
Closed-loop systems
Coaxial cables (*see* Cables and overhead lines)
Coaxial components
Codes and decoding
Commutation
Components
Computer applications
Computer graphics
Computer simulation
Computer-aided design
Conductors and conductivity
Control equipment and applications
Control systems
Control theory
Convertors
Crosstalk
Cybernetics and robotics
Decoding (*see* Codes and decoding)
Delay lines
Demodulation (*see* Modulation)
Design
Detection
Dielectric materials
Digital arithmetic (*see* Digital computers and computation)
Digital circuits
Digital communication systems
Digital computers and computation
Digital control (*see* Digital computers and computation)
Digital instrumentation (*see* Instrumentation and measuring science)
Digital-analogue conversion
Diodes
Discharges, electric (*see* Arcing)
Discharges, gas (*see* Breakdown and gas discharges)
Distribution networks (*see* Power transmission)
Doping
Earthing (*see* System protection)
Eddy currents
Education and training
Educational projects
Electric shock (*see* Hazards)
Electrical machines
Electromagnetic compatibility
Electromagnetic theory
Electron devices
Electronic circuits (*see* Circuit theory and design)
Energy conversion and storage
Engineering and society
Engineering administration and management
Epitaxy
Errors and error analysis
Fault detection
Fault location
Feedback
Ferrites and ferromagnetics
Ferromagnetics (*see* Ferrites and ferromagnetics)
Fibres, optical (*see* Optics)
Field-effect transistors
Filters and filtering
Financial management
Fuel cells (*see* Batteries and cells)
Generators
Graph theory and topology
Gunn devices
Hazards
History (*see* Reviews of progress)
Holography (*see* Optics)
Hydroelectric power generation
Hysteresis
Image processing
Induction motors
Industrial applications of power (*see* Power utilisation and industrial applications)
Information and communication theory
Instrumentation and measuring science
Insulators and insulation
Integrated circuits (*see* Circuit theory and design)
Integrated optics (*see* Optics)
Interface states
Interference (*see* Noise and interference)
Inverters (*see* Power electronics)
Ionisation (*see* Breakdown and gas discharges)
Ionospheric propagation (*see* Radio-wave propagation)
Lasers
Lighting
Lightning and lightning protection
Linear motors
Linear networks (*see* Networks)
Load and voltage regulation
Logic
Long-term planning
Magnetic devices and properties
Magnetic fields
Management
Manufacturing
Mathematical techniques
Matrix algebra (*see* Mathematical techniques)
Measurement and measuring (*see* Instrumentation and measuring science)
Metal-insulator-semiconductor structures
Metal-oxide-semiconductor structures
Microprocessors
Microscopes
Microstrip and stripline
Microwave active components
Microwave circuits and networks
Microwave communications
Microwave heating
Microwave integrated circuits
Microwave measurements
Microwave passive components
Microwave systems
Microwave tubes
Millimetre wave devices and components
Modelling (*see* Simulation)
Modulation
Monitoring
Motors (*see* Induction motors, Linear motors, Reluctance motors, Stepping motors, Synchronous motors)
Motors, induction (*see* Induction motors)
Motors, linear (*see* Linear motors)
Motors, reluctance (*see* Reluctance motors)
Motors, stepping (*see* Stepping motors)
Motors, synchronous (*see* Synchronous motors)
Multivariable control systems (*see* Control equipment and applications)
Natural resources
Networks (*see* Telephone exchanges and networks)
Noise and interference
Nondestructive testing
Nonlinear optics
Nonlinear systems
Numerical analysis
Optical amplifiers
Optical cables
Optical fibres (*see* Optics)
Optical materials
Optical processing (*see* Signal processing and optics)
Optical sensors
Optical switching
Optical systems (*see* Optics)
Optical transmission (*see* Optics)
Optical waveguides
Optics
Optimal control
Optimisation
Optoelectronics
Oscillators (*see* Semiconductor devices and materials)
Overhead lines (*see* Cables and overhead lines)
Overvoltages (*see* System protection)
Pattern recognition (*see* Picture processing and pattern recognition)
Permittivity
Perturbation theory
Phasing and phase control
Photodetectors
Physical properties
Picture processing and pattern recognition
Plant condition monitoring
Plasmas
Poles and zeros
Polynomials (*see* Mathematical techniques)
Power conversion (*See* Transformers)
Power electronics
Power system protection (*see* System protection)
Power systems and plant
Power transmission and distribution (*see* Transmission and distribution plant)
Power utilisation and industrial applications
Process control (*see* Control theory)
Product design
Production engineering (*see* Project and production engineering)
Project and production engineering (*See* Engineering administration and management)
Propogation in random media
Pulse-code modulation
Quantum electronics
Radar and radionavigation
Radiation
Radio astronomy
Radio waves (*see* Radio-wave propagation)
Radio-wave propagation (ground wave)
Radio-wave propagation (ionospheric)
Radio-wave propagation (microwave)
Radio-wave propagation (millimetre wave)
Radio-wave propagation (terrain effects)
Radio-wave propagation (tropospheric)
Radiocommunication
Radionavigation (*see* Radar and radionavigation)
Radomes
Railway electrification and transportation
Receivers
Relays (*see* system protection)
Reliability
Reluctance motors
Remote sensing
Reviews of progress
Robotics (*see* Cybernetics and robotics)
Satellite links and space communication
Schottky-barrier devices
Semiconductor devices and materials (*see* Diodes, Thyristors and Transistors)
Semiconductor lasers
Servomotors
Signal processing
Simulation
Social responsibility
Solar cells (*see* Energy conversion and storage)
Solar power
Sonics and ultrasonics
Sound broadcasting and audio
Space communication (*see* Satellite links and space communication)
Speech synthesis
Stabilisers (*see* Stability)
Stability
Standardisation and standards
Stepping motors
Submillimetre systems
Superconductivity
Surface-acoustic-wave devices (SAW)
Switches and switching theory
Switchgear
Synchronous generators (*see* Generators)

Synchronous motors
System protection
Telecommunication (*see* Radiocommunication)
Telecommunication traffic (*see* Telecommunication)
Telemetry
Telephone exchanges and networks
Telephony
Teletext
Television
Thyristors (*see* Semiconductor devices and materials)
Tidal power
Topology (*see* Graph theory and topology)
Torque (*see* Motors)
Traction (*see* Railway electrification and transportation)
Transducers
Transformers
Transients
Transistors (*see* Semiconductor devices and materials)
Transmission and distribution plant (*see* Power transmission and distribution)
Transmission lines
Transmitters
Transportation (*see* Vehicles and transportation)
Tropospheric propagation (*see* Radiowave propagation)
Turbogenerators (*see* Generators)
Ultrasonics (*see* Sonics and ultrasonics)
Underground cables (*see* Cables and overhead lines)
Vehicles and transportation
Very large scale integration
Vibration
Vocoders (*see* Voice communication)
Voice communication
Voltage regulators (*see* Load and voltage regulation)
Waveguides and waveguide components
Wave power
Wind power (*see* Energy conversion and storage)
X-rays

ACOUSTOELECTRIC EFFECTS

A study of tropospheric scintillations using SODAR. D. Narayana Rao, K. Krishna Reddy, K.S. Ravi, S.V.B. Rao, M.J. Kesava Murthy, H.N. Dutta, S.K. Sarkar and B.M. Reddy **H** p313
Characterisation of high frequency focused ultrasonic transducers using modulation transfer function: Concept and experimental approach. K. Shiloh, A.K. Som and L.J. Bond **A** p205
Effect of errors in the plant model on the performance of algorithms for adaptive feedforward control. C.C. Boucher, S.J. Elliott and P.A. Nelson **F** p313
Gradient-based adaptive algorithms for systems with external feedback paths. S.J. Flockton **F** p308

ACTIVE NETWORKS

Canonical design of integrated ladder filters. R.K. Henderson, Li Ping and J.I. Sewell **G** p222
Some more published literature on current conveyors. T.S. Rathore **G** p432

ADAPTIVE CONTROL

AGC strategy for adaptive digital modems employing cyclic channel estimation in an HF frequency hopping scenario. L.P. Linde **I** p185
Adaptive control of a single-link flexible manipulator with unknown load. T.-C. Yang, J.C.S. Yang and P. Kudva **D** p153
Adaptive control of plants using all-zero model for dead-time identification. S. Roy, O.P. Malik and G.S. Hope **D** 445
Adaptive detection using least-square filters. A. Reichman **I** p239
Channel-estimation-based adaptive DFE for fading multipath radio channels. P.K. Shukla and L.F. Turner **I** p525
Digital matched-correlator automatic gain control scheme applicable to MFSK modems. F. Zolghadr and B. Honary **I** p123
Effect of errors in the plant model on the performance of algorithms for adaptive feedforward control. C.C. Boucher, S.J. Elliott and P.A. Nelson **F** p313
Generalised minimum-variance stochastic self-tuning controller with pole restriction. C.C. Hang, K.W. Lim and W.K. Ho **D** p25
Hybrid state-space self-tuning control using dual-rate sampling. L.S. Shieh, X.M. Zhao and J.W. Sunkel **D** p50
Identification for long-range predictive control. D.S. Shook, C. Mohtadi and S.L. Shah **D** p75
Integral equation approach to joint state and parameter estimation in continuous-time MIMO systems. S. Mukhopadhyay and G.P. Rao **D** p93
Learning systems: Theory and application. K. Najim and G. Oppenheim **E** p183
Model reference adaptive control for large scale systems with application to power systems. H. Yousef and M. Simaan **D** p321
Multivariable and multirate self-tuning control: a distillation column case study. M.T. Tham, F. Vagi, A.J. Morris and R.K. Wood **D** p9
Neural controller based on back-propagation algorithm. M. Saerens and A. Soquet **F** p55
New method of designing adaptive nonlinear filters. K. Deergha Rao and D.C. Reddy **F** p513
Parameter transient tracking for recursive estimation. R. Fernandez del Busto, P.E. Wellstead and M.B. Zarrop **D** p68
Robustness effects of a prefilter in generalised predictive control. B.D. Robinson and D.W. Clarke **D** p2
Self-adaptive design of a nonlinear temperature control system. A. Chotai, P.C. Young and M.A. Behzadi **D** p41
Self-organising fuzzy logic control and application to muscle relaxant anaesthesia. D.A. Linkens and S.B. Hasnain **D** p274
Self-tuning predictive PID controller. P. Vega, C. Prada and V. Aleixandre **D** p303
Stochastic learning automata and adaptive IIR filters. C.K.K. Tang and P. Mars **F** p331
Two-mode adaptive beamformer using a systolic array. K. Takao and C.S. Boon **F** p483

AMPLIFIERS

Class D voltage-switching MOSFET power amplifier. M.K. Kazimierczuk **B** p285
Design of phase velocity tapers in coupled-cavity TWTs. V. Srivastava and R.G. Carter **H** p469
Low-frequency gain-enhanced CMOS operational amplifier. S. Aggarwal and A.B. Bhattacharyya **G** p170
Modulation of picosecond pulses using semiconductor laser amplifiers. A.M. Lomax and I.H. White **J** p178
Novel CMOS operational amplifier design technique for high-frequency switched-capacitor applications. R.E. Vallee and E.I. El-Masry **G** p623
Performance of transfer resistance amplifiers with capacitive sources in optical applications. D.K. Hamilton **G** p45
Reduction of spectral distortion in class D amplifiers by an enhanced pulse width modulation sampling process. P.H. Mellor, S.P. Leigh and B.M.G. Cheetham **G** p441
Stabilisation of fundamental-lateral-mode oscillations using optical feedback within an integrated amplifier/laser array. S. Mukai, M. Watanabe, H. Itoh and H. Yajima **J** p97
Synthesis of feedforward neural analogue-digital convertors. G. Martinelli and R. Perfetti **G** p567
Use of inductive compensation for improving bandwidth and noise performance of high frequency optical receiver preamplifiers. D.K. Hamilton **G** p52
Versatile strategy for CAD of multistage low-noise amplifiers. G. Capponi and B. Di Maio **H** p380

ANALOGUE COMPUTERS AND COMPUTATION

Use of SPICE in analogue computation and simulation of systems consisting of circuit components and transfer functions. M.H.L. Chow, Y.S. Lee and J.S.L. Wong **G** p282

ANALOGUE FILTERS

Comparison of four CMOS transconductors for fully integrated analogue filter applications. G. Wilson and P.K. Chan **G** p683

ANALOGUE-DIGITAL CONVERSION

Analogue implementation of the Hough transform. D. Ben-Tzvi and M. Sandler **G** p457
Analysis of analogue circuit implementations from translinear blocks. A. Fabre **G** p483
Synthesis of feedforward neural analogue-digital convertors. G. Martinelli and R. Perfetti **G** p567

ANTENNAS

Cross-correlation between 900 MHz signals received on vertically separated antennas in small-cell mobile radio systems. M.T. Feeney and J.D. Parsons **I** p81
Design and performance of a reconfigurable mesh reflector antenna. Part 1: Antenna design. P.J.B. Clarricoats and H. Zhou **H** p485
Design and performance of a reconfigurable mesh reflector antenna. Part 2: Antenna performance. P.J.B. Clarricoats and H. Zhou **H** p493
Effects of ground plane truncation on the impedance of a patch antenna. A.K. Bhattacharyya **H** p560
Influence of supporting dielectric layers on the transmission properties of frequency selective surfaces. P. Callaghan, E.A. Parker and R.J. Langley **H** p448
Microwave and millimetre-wave receivers with integral antenna. C.J. Alder, C.R. Brewitt-Taylor, M. Dixon, R.D. Hodges, L.D. Irving and H.D. Rees **H** p253
New type of printed polygonal loop antenna. M. Cai and M. Ito **H** p389

ANTENNAS (ADAPTIVE)

Applications of minimum redundancy arrays in adaptive beamforming. M.B. Jorgenson, M. Fattouche and S.T. Nichols **H** p441
Bearing estimation using unity response beamforming approach. B.P. Ng **H** p537
Symmetric-pair antennas for beam steering, direction finding or isotropic-reception gain. R. Benjamin, W. Titze, P.V. Brennan and H.D. Griffiths **H** p368

ANTENNAS (APERTURE)

Flanged parallel-plate waveguide coupled to a conducting cylinder. C.M. Butler, C.C. Courtney, P.D. Mannikko and J.W. Silvestro **H** p549
Two stage computation of apertures in finite screens. R. Kastner and N. Herscovici **H** p435

ANTENNAS (ARRAYS)

A Bayesian approach to high-resolution beamforming. J. Lasenby and W.J. Fitzgerald **F** p539
Analysis of infinite periodic array of thin wire radiators with dielectric loading. S. Singh and H.M. Mannaa **H** p207
Applications of minimum redundancy arrays in adaptive beamforming. M.B. Jorgenson, M. Fattouche and S.T. Nichols **H** p441
Arrays of finite or infinite extent in multilayered media for use as passive frequency-selective surfaces. A. Janhsen and V. Hansen **H** p1
Bisector angle estimation in a nonsymmetric multipath radar scenario. M.D. Zoltowski and T.-S. Lee **F** p559
Comparison between different rectangular horn elements for array antenna applications. E. Lier, S. Rengarajan and Y. Rahmat-Samii **H** p283
Convoluted array elements and reduced size unit cells for frequency-selective surfaces. E.A. Parker and A.N.A. El Sheikh **H** p19
Frequency-scanned reflection gratings consisting of ring patches. F. Stefan Johansson **H** p273
Influence of supporting dielectric layers on the transmission properties of frequency selective surfaces. P. Callaghan, E.A. Parker and R.J. Langley **H** p448
Low cost phased array antenna for land-mobile satcom applications. P.V. Brennan **H** p131
Multiple beam microstrip patch array with integrated beamformer. S.J. Vetterlein and P.S. Hall **H** p176
New method of constructing the projection matrix for array processing in single snapshot case. M. Zhang, W. Yang and L. Li **F** p407
Optimised array antenna nulling with phase-only control. F.R. Castella and J.R. Kuttler **F** p241
Symmetric-pair antennas for beam steering, direction finding or isotropic-reception gain. R. Benjamin, W. Titze, P.V. Brennan and H.D. Griffiths **H** p368
Target tracking algorithms for phased array radar. D.J. Wilkin, I. Harrison and M.S. Woolfson **F** p255
Two-dimensional aperiodic antenna arrays with a low sidelobe level. L.E. Kopilovich and L.G. Sodin **H** p233
Ultra-wideband beamforming in sparse arrays. F. Anderson, W. Christensen, L. Fullerton and B. Kortegaard **H** p342

ANTENNAS (DIPOLE)

Discrete complex images of a three-dimensional dipole above and within a lossy ground. J.J. Yang, Y.L. Chow and D.G. Fang **H** p319
Electromagnetic properties of an insulated dipole antenna immersed in an arbitrary medium. A.H. Ghods and Y. Rahmat-Samii **H** p497
Iterative calculation of ship-borne HF antenna performance. P.J. Baldwin, A.G.P. Boswell, D.C. Brewster and J.S. Allwright **H** p151

ANTENNAS (FREQUENCY INPENDENT)

Dual-spiral slot antennas. K. Hirose and H. Nakano **H** p32

ANTENNAS (HORNS AND FEEDS)

Analysis of waveguide-fed thick radiating rectangular windows in a ground plane. B.N. Das, A. Chakraborty and S. Gupta **H** p142
On the performance of metallic-wall conical horns with centrally-loaded dielectric material. C.M. Knop **H** p23
Propagation and radiation characteristics of rectangular dielectric-loaded hybrid mode horn. E. Lier and C. Stoffels **H** p407

ANTENNAS (MEASUREMENTS)

Phase measurements of millimetre wave antennas at 105–190 GHz with a novel differential phase method. J. Tuovinen, A. Lehto and A. Räisänen **H** p114

Proposed method for measurement of absorption loss and beam efficiency of large mm-wave reflector antennas in compact antenna test range by using hot and cold loads. A. Lehto, J. Tuovinen and A. Räisänen H p13

ANTENNAS (MICROSTRIP)

Analysis of a probe-fed microstrip disk antenna. W.C. Chew, Z. Nie, Q.H. Liu and Y.T. Lo H p185
Analysis of spherical circular microstrip antennas. B. Ke and A.A. Kishk H p542
Convoluted array elements and reduced size unit cells for frequency-selective surfaces. E.A. Parker and A.N.A. El Sheikh H p19
Dual-spiral slot antennas. K. Hirose and H. Nakano H p32
Electromagnetic interference of a plane wave incident on superstrate-loaded microstrip circuits. K.-L. Wong H p455
Far field analysis of spherical-circular microstrip antennas by electric surface current models. W.-Y. Tam and K.-M. Luk H p98
Flat-plate steerable antennas for satellite communications and broadcast reception. M.C.D. Maddocks and M.S. Smith H p159
Full wave analysis of arbitrarily shaped line-fed microstrip antennas using triangular finite-element method. K.-L. Wu, J. Litva, R. Fralich and C. Wu H p421
Low cost phased array antenna for land-mobile satcom applications. P.V. Brennan H p131
Multiple beam microstrip patch array with integrated beamformer. S.J. Vetterlein and P.S. Hall H p176
Patch antennas on a spherical body. K.-M. Luk and W.-Y. Tam H p103
Theoretical and experimental study of feed network effects on the radiation pattern of series-fed microstrip antenna arrays. K.-L. Wu, M. Spenuk, J. Litva and D.-G. Fang H p238

ANTENNAS (MILLIMETRE WAVE)

Phase measurements of millimetre wave antennas at 105–190 GHz with a novel differential phase method. J. Tuovinen, A. Lehto and A. Räisänen H p114

ANTENNAS (REFLECTORS)

Design and performance of a reconfigurable mesh reflector antenna. Part 1: Antenna design. P.J.B. Clarricoats and H. Zhou H p485
Design and performance of a reconfigurable mesh reflector antenna. Part 2: Antenna performance. P.J.B. Clarricoats and H. Zhou H p493
Effects of adding a small disk to a spiral antenna backed by a conducting plane reflector. H. Nakano, H. Soga, T. Honma and J. Yamauchi H p375
Frequency-scanned reflection gratings consisting of ring patches. F. Stefan Johansson H p273

ANTENNAS (SLOT)

Analysis of waveguide-fed thick radiating rectangular windows in a ground plane. B.N. Das, A. Chakraborty and S. Gupta H p142
Dual-spiral slot antennas. K. Hirose and H. Nakano H p32
New type of printed polygonal loop antenna. M. Cai and M. Ito H p389
Rigorous analysis of the TM_{0_q} modes in a dielectric-post resonator with an annular slot in the upper plate. K.A. Michalski, X. Di and A.W. Glisson H p429

ANTENNAS (THEORY)

Electromagnetic properties of an insulated dipole antenna immersed in an arbitrary medium. A.H. Ghods and Y. Rahmat-Samii H p497
Elimination of false singularities in GTD equivalent edge currents. M. Ando, T. Murasaki and T. Kinoshita H p289

ANTENNAS (TIME DOMAIN)

Ultra-wideband beamforming in sparse arrays. F. Anderson, W. Christensen, L. Fullerton and B. Kortegaard H p342

ANTENNAS (TRAVELLING WAVE)

Isolation of the travelling wave contribution to the backscatter pattern of conducting cylinders. M.C. de Villiers and J.A.G. Malherbe H p417

ANTENNAS (WIRE)

Analysis of infinite periodic array of thin wire radiators with dielectric loading. S. Singh and H.M. Mannaa H p207
Iterative calculation of ship-borne HF antenna performance. P.J. Baldwin, A.G.P. Boswell, D.C. Brewster and J.S. Allwright H p151
Numerical modelling technique for the radiation of wire antennas near conducting surfaces. M.A. Hassan H p225

ARCING

Current zero flow conditions in a circuit breaker-nozzle. S. Taylor, M.T.C. Fang, G.R. Jones and D.S. Shimmin A p259
Discharges in asymmetric cavities under AC stresses. G. Robinson A p119
Effect of a magnetic field on low-pressure gaseous breakdown along the surface of a solid insulator. M. Ohki and S. Saito A p300
Erosive failure caused by surface discharge on the surface of epoxy resin immersed in insulating oil. T. Ikejiri and A. Kawamoto A p288
Investigation of ablation-dominated AC nozzle arcs. M.T.C. Fang and W.H. Bu A p71
MHD arcjet onset studies. T.S. Sheshadri A p286
Optical detector of electrical discharges. A. Beroual and F. Buret G p620
The chemistry of electric fuse arcing. D.R. Barrow, A.F. Howe and N. Cook A p83
Verification of an alternating current corona model for use as a transmission line design aid. D.A. Rickard, J. Dupuy and R.T. Waters A p250

ARRAY PROCESSING

Adaptive signal parameter estimation and classification technique. A.N. Manikas and L.F. Turner F p267
Approach for the reconfiguration of multipipeline arrays. P. Koo, F. Lombardi and Y.-N. Shen E p131
Bearing estimation using unity response beamforming approach. B.P. Ng H p537
Improvement on the estimation of covariance matrices by incorporating cross-correlations. R.L. Kirlin and W. Du F p479
PACE: A regular array for implementing regularly and irregularly structured algorithms. A. Spray and S. Jones G p613
Resolution threshold for coherent sources using smoothed eigenstructure methods. L. Chang and C.-C. Yeh F p470
Two-mode adaptive beamformer using a systolic array. K. Takao and C.S. Boon F p483

AVIONICS

Distributed artificial intelligence approach to air traffic control. N.V. Findler and R. Lo D p515

BIPOLAR TRANSISTORS

Analysis of analogue circuit implementations from translinear blocks. A. Fabre G p483
Gummel-Poon model for single and double heterojunction bipolar transistors. C.N. Huang and Ibrahim M. Abdel-Motaleb G p165
New nonlinear large-signal DC bipolar junction transistor model. J. Rodriguez-Tellez G p145
Novel modification on SPICE BJT model to obtain extended accuracy. H. Kuntman G p673
Physics-based large-signal heterojunction bipolar transistor model for circuit simulation. J.J. Liou and J.S. Yuan G p97
Stabilised power MOS-bipolar modules. M.J. Lazarus, K.V.O Rabah and P.S. McKeany G p564
Thermal simulation of transients in microwave devices. P.W. Webb and I.A.D. Russell G p329

BREAKDOWN AND GAS DISCHARGES

Effect of a magnetic field on low-pressure gaseous breakdown along the surface of a solid insulator. M. Ohki and S. Saito A p300
Positive DC corona and sparkover in short and long rod-plane gaps under variable humidity conditions. M. Boutlendj, N.L. Allen, H.A. Lightfoot and R.B. Neville A p31
Study of the electric fields required for streamer propagation in humid air. N.L. Allen and M. Boutlendj A p37
Synthetic theory of Poole and Poole–Frenkel (PF) effects. R. Ongaro and A. Pillonnet A p127
Two-dimensional off-state modelling of high-voltage semiconductor devices with floating guard rings. D.J. Byrne, M.S. Towers and K. Board G p109

CABLES AND OVERHEAD LINES

Method of equal probability overvoltages for calculating risk of failure of power transmission lines. M. Gavric' C p19
New approach to directional fault location for overhead power distribution feeders. A.T. Johns, L.L. Lai, M. El-Hami and D.J. Daruvala C p351

CHARGE-COUPLED DEVICES

Systematic realisation of binary and multivalued logic functions using charge coupled building blocks. H.M. Abd-El-Barr G p694

CIRCUIT BREAKERS AND CIRCUIT BREAKING

Current zero flow conditions in a circuit breaker-nozzle. S. Taylor, M.T.C. Fang, G.R. Jones and D.S. Shimmin A p259
Worst case studies of short-circuit making-currents. W.F.J. Kersten and W.M.C van den Heuvel C p129

CIRCUIT THEORY AND DESIGN

A systematic method for obtaining state equations using MNA. S. Natarajan G p341
Analogue adaptive neural network circuit. M.L. Chiang, T.C. Lu and J.B. Kuo G p717
CCII-based continuous-time filters with reduced gain-bandwidth sensitivity. S.-I. Liu, H.-W. Tsao and J. Wu G p210
Canonical design of integrated ladder filters. R.K. Henderson, Li Ping and J.I. Sewell G p222
Charge injection of analogue CMOS switches. C. Eichenberger and W. Guggenbühl G p155
Comments on 'Algorithm for reducing circuit equations in computer applications'. D.G. Bedrosian and J. Vlach G p733
Current flow between neighbouring trench cells triggered by alpha particle strikes. W.H. Krautschneider, R. Gerhard and M. Kohl G p689
Current programmed control nonresonant coupled parallel resonant convertor. C.Q. Lee and S. Sooksatra G p372
Design of CMOS circuits. D. Radhakrishnan G p83
Hebbian plasticity in MOS synapses. H.C. Card, C.R. Schneider and W.R Moore F p13
High-frequency link parallel resonant convertor with fourth-order commutation network. I.E. Batarseh and C.Q. Lee G p34
Identification of generalised models of synchronous machines from time-domain tests. I. Kamwa, P. Viarouge and E.J. Dickinson C p485
Minimum dimensional state-space formulation of linear systems. S. Atadan G p590
New approach to automatic symbolic analysis of electric circuits. S. Manetti G p22
New folded cascode transconductor for bandpass ladder filters. N.P.J. Greer and P.B. Denyer G p551
Numerical procedure for simulating the large-signal quantum behaviour of superconducting tunnel-junction circuits. S. Withington and P. Kennedy G p70
Optical circuits and integrated detectors. M. Erman, Ph. Riglet, Ph. Jarry, B.G. Martin, M. Renaud, J.F. Vinchant and J.A. Cavailiès J p101
Some more published literature on current conveyors. T.S. Rathore G p432
Switched capacitor circuit synthesis using voltage inversion principles. C. Psychalinos, I. Haritantis and D.G. Haigh G p703
Switched-capacitor pipelined logarithmic A/D and D/A convertors. M.-H. Cheng and T.-C. Huang G p714
Symbolic transfer functions for MESFET small-signal parameter extraction. V.F. Fusco G p217
Systematic method for the design of multiamplifier switched-capacitor FIR decimator circuits. J.E. Franca and V.F. Dias G p307
Test generation within an expert system environment. S.J. Cosgrove and G. Musgrave E p36

CLOSED-LOOP SYSTEMS

Decoupling and pole assignment in generalised state space systems. P.N. Paraskevopoulos and F.N. Koumboulis **D** p547
Optimal tracking with previewed commands. M.E. Halpern **D** p237
Unifying approach to observers for regular and singular systems. P.N. Paraskevopoulos and F.N. Koumboulis **D** p561

COAXIAL COMPONENTS

Matrix analysis of split coaxial balun. W.J. Louw **H** p378
Some calculation methods and universal diagrams for measurement of dielectric constants using open-ended coaxial probes. Y. Xu, R.G. Bosisio and T.K. Bose **H** p356
TEM wave current distribution on two coaxial arc strips. J. Zehentner **H** p277
Transient electromagnetic shielding in a system of two coaxial cylindrical shells. C.S. Antonopoulos, S.M. Panas and E.E. Kriezis **A** p281

CODES AND DECODING

Application of multiple path sequential decoding for intersymbol interference reduction problem. D. Haccoun and S. Kallel **I** p21
Block codes on a dispersive channel. A.G. Burr **I** p95
Combination of block-coded modulation and trellis-coded modulation. J.-M. Wu and S.-L. Su **I** p381
Comparing coding efficiency of vector chain coding and run-length coding for line drawings. Kun Liu and Ramjee Prasad **I** p363
Correlation decoding of the (24, 12) Golay code using neural networks. J. Yuan and C.S. Chen **I** p517
Estimation of unreliable packets in subband coding of speech. W.C. Wong, N. Seshadri and C.-E.W. Sundberg **I** p43
Experimental assessment of phase retrieval holography of radiotelescope. D. Morris, J.H. Davis and C.E. Mayer **H** p243
Fast Fourier transform based speech encryption system. S. Sridharan, E. Dawson and B. Goldburg **I** p215
Fast algorithm for VQ codebook design. S.-H. Chen and W.M. Hsieh **I** p357
Finite state CELP for variable rate speech coding. S.V. Vaseghi **I** p603
Fully transparent phase/Doppler invariant trellis-coded modulation. Y.-J. Liu and E. Biglieri **I** p105
Implementation of Berlekamp–Massey algorithm without inversion. Y. Xu **I** p138
Multilevel data communication over optical fibre. J.K. Pollard **I** p162
Performance analysis of efficient concatenated coding scheme for ARQ protocols. T.-H. Lee **I** p148
Phase jitter sensitivity of rotationally invariant 8 and 16 point trellis codes. A. Fung and P. McLane **I** p247
Remote password authentication with smart cards. C.-C. Chang and T.-C. Wu **E** p165
Removal of subjective redundancy from DCT-coded images. D.L. McLaren and D.T. Nguyen **I** p345
Robust low-complexity backward adaptive pitch predictor for low-delay speech coding. V. Cuperman and R. Pettigrew **I** p338
Simulation study of trellis-coded transceivers for high-bit rate digital subscriber loops. T.D. Bilodeau and W.A. Krzymien **I** p503
Variation of vector quantisation and speech waveform coding. A.K. Nandi, M.F. Aburdene, A.G. Constantinides and I. Dologlou **I** p76

COMMUNICATION SYSTEMS THEORY

Electro-optic interferometers in wideband subcarrier-multiplexed optical communication. T. Chattopadhyay **J** p60
Fine grain mapping strategy for multiprocessor systems. J.J. Shieh and C.A. Papachristou **E** p109
Mode competition and switching in three section DBR tunable lasers. I. Maio, G.P. Bava and I. Montrosset **J** p52
Numerical simulation of avalanche photodiodes with guard ring. J. Harari, D. Decoster, J.P. Vilcot, B. Kramer, C. Ogüey, P. Salsac and G. Ripoche **J** p211
Operation of HDLC ABM in harsh error environments: a robust extension. G. Fairhurst **I** p291
Performance analysis of efficient concatenated coding scheme for ARQ protocols. T.-H. Lee **I** p148
Performance analysis of phase-locked loops in the frequency search mode of operation. P. Hasan **G** p418
Performance analysis of the delay and exclusive-OR type clock recovery circuit in an APD-based optical receiver. D. Datta and R. Gangopadhyay **J** p21
Performance of an asynchronous hybrid spread spectrum system in the presence of interference, Rician fading and AWGN. L. Sadiq and A.H. Aghvami **I** p117
Serial acquisition in a 16 khop/s fast-frequency-hop system. N.F. Zein and W.G. Chambers **I** p141
Study of adjacent and co-channel FM interference reduction. H.W. Hawkes **I** p319

COMMUTATION

Implicit rotor-position sensing using motor windings for a self-commutating permanent-magnet drive system. K.J. Binns, D.W. Shimmin and K.M. Al-Aubidy **B** p28

COMPONENTS

Thermal imaging of electronic devices with low surface emissivity. P.W. Webb **G** p390

COMPUTER APPLICATIONS

Comments on 'systematic procedure for test generation of PAL based circuits'. A.S. Nale **E** p106
Design of artificial neural networks for short-term load forecasting. Part I: Self-organising feature maps for day type identification. Y.-Y. Hsu and C.-C. Yang **C** p407
Design of artificial neural networks for short-term load forecasting. Part II: Multilayer feedforward networks for peak load and valley load forecasting. Y.-Y. Hsu and C.-C. Yang **C** p414
Distributed robot control on transputer network. A.M.S. Zalzala and A.S. Morris **E** p169
Extended diagonal structure for address generation of the prime factor algorithm. D.P.-K. Lun and W.-C. Siu **G** p449
Extending parallelism to memory hierarchies in massively parallel systems. K.H. Al-Saqabi and E.W. Davis **E** p193
Fast algorithm for VQ codebook design. S.-H. Chen and W.M. Hsieh **I** p357
Fault-tolerant serial-parallel multiplier. L.G. Chen and T.H. Chen **E** p276
Heuristic model for task allocation in distributed computer systems. A.K. Sarje and G. Sagar **E** p313
Integrating an expert system into a thermal unit-commitment algorithm. Md-Sayeed Salam, Abdul-Razak Hamdan and Khalid Mohamed Nor **C** p553
Microprocessor design using silicon compiler. W.T. Webb and K.G. Nichols **E** p232
On nonuniform packet switched delta networks and the hot-spot effect. P.G. Harrison **E** p123
Performance analysis of dynamic multitasking imprecise computation system. C.C. Lim and W. Zhao **E** p345
RESCU: a real-time knowledge based system for process control. R. Leitch, R. Kraft and R. Luntz **D** p217
Simulation of PM2I network by folded hypercube. S. Latifi **E** p397
Six-pulse three-phase rectifier bridge models for calculating closeup and remote short circuit transients on DC supplied railways. J.C. Brown, J. Allan and B. Mellitt **B** p303
Synchronisation in parallel processing of finite sequences. A. Stafylopatis and E. Gelenbe **E** p329
Tagged systolic array. S. Sarkar and A.K. Majumdar **E** p289

COMPUTER GRAPHICS

Systolic accelerator for parametric surface modelling. A. Valenzano, P. Montuschi and L. Ciminiera **E** p223
Tristage Hough transform for multiple ellipse extraction. H.K. Muammar and M. Nixon **E** p27

COMPUTER SIMULATION

Computer simulation of three-phase prestriking transients in cable-connected motor systems. K.J. Cornick and A.N.D. Tleis **B** p105
New approach to automatic symbolic analysis of electric circuits. S. Manetti **G** p22
VLSI implementation of Tausworthe random number generator for parallel processing environment. J. Saarinen, J. Tomberg, L. Vehmanen and K. Kaski **E** p138

COMPUTER-AIDED DESIGN

Alternative control strategies for rule-based transistor placement in CMOS VLSI design. R. Hoyle, A. Priest and G. Hetherington **G** 137
Expert compactor: a knowledge-based application in VLSI layout compaction. P.-Y. Hsiao and C.-C. Tsai **E** p13
Expert system for SROOT. P.A. Muha **D** p381
Sequential design of multivariable control systems. J. Van de Vegte **D** p103
Solving the interconnection problem with a linked assembly of neural networks. A.D.P. Green and P.D. Noakes **F** p63
Triac model for computer aided analysis and design. G. Arsov **G** p430
Versatile strategy for CAD of multistage low-noise amplifiers. G. Capponi and B. Di Maio **H** p380

CONDUCTORS AND CONDUCTIVITY

Q of a coaxial cavity with a superconducting inner conductor. L.E. Davis and P.A. Smith **A** p313

CONTROL EQUIPMENT AND APPLICATIONS

Adaptive control of a single-link flexible manipulator with unknown load. T.-C. Yang, J.C.S. Yang and P. Kudva **D** p153
Application of stochastic optimal control to thin rib machining. M. Anjanappa, D.K. Anand and J.A. Kirk **D** p228
Damping of synchronous generator by static reactive power compensator with digital controller. C.-J. Wu and Y.-S. Lee **C** p427
Improvement of greenhouse heating control. P.F. Davis and A.W. Hooper **D** p249
Multivariable and multirate self-tuning control: a distillation column case study. M.T. Tham, F. Vagi, A.J. Morris and R.K. Wood **D** p9
Multivariable self-tuning regulator for load frequency control system with interaction of voltage on load demand. K. Yamashita and H. Miyagi **D** p177
Sequential design of multivariable control systems J. Van de Vegte **D** p103

CONTROL SYSTEMS

Agile computer control and surveillance systems. R. Whalley **D** p185
Application of generalised predictive control to a boiler-turbine unit for electricity generation. J.A. Rossiter, B. Kouvaritakis and R.M. Dunnett **D** p59
Composite dynamic and steady-state approach to stochastic optimising control of steady-state systems with output dependent constraints. J. Lin, M. Wang and P.D. Roberts **D** p123
Constrained receding-horizon predictive control. D.W. Clarke and R. Scattolini **D** p347
Constrained variance design for bilinear stochastic continuous systems. H.-Y. Chung and W.-J. Chang **D** p145
Decoupling of descriptor systems. N. Minamide, P.N. Nikiforuk and M.M. Gupta **D** p453
Design and implementation of microprocessor based sliding mode controller for brushless servomotor. J.P. Karunadasa and A.C. Renfrew **B** p345
Design and implementation of self-tuning active noise control systems. M.O. Tokhi and R.R. Leitch **D** p421
Design of integral variable structure controller and application to electrohydraulic velocity servosystems. T.-L. Chern and Y.-C. Wu **D** p439
Determination of transfer function of two dimensional generalised systems using the discrete Fourier transform. G.E. Antoniou, S.E. Mentzelopoulou and G.O. Glentis **D** p327
Development of a blackboard shell with context blackboard-based control loop. C.-S. Ho **E** p1
Effect of errors in the plant model on the performance of algorithms for adaptive feedforward control. C.C. Boucher, S.J. Elliott and P.A. Nelson **F** p313
Elevator scheduling system using blackboard architecture. G.K.H. Pang **D** p337
Frequency-domain approach to state-space LQG self-tuning control. T.J. Moir **D** p372
Gain margins and phase margins for sampled-data control systems with adjustable parameters. C.-H. Chang and K.-W. Han **D** p285
Geometric approach for fault diagnosis in linear dynamic control systems. J.H. Kim and Z. Bien **D** p293
Improvement of greenhouse heating control. P.F. Davis and A.W. Hooper **D** p249

Iterative learning control method for discrete-time dynamic systems. D.-H. Hwang, Z. Bien and S.-R. Oh **D** p139
Learning systems: Theory and application. K. Najim and G. Oppenheim **E** p183
Linear feedback approach to the stabilisation of uncertain discrete systems. E. Gyurkovics **D** p507
Microprocessor based automatic sun tracker. A. Konar and A.K. Mandal **A** p237
Model reference control of nonlinear plants with uncertain and unbounded terms. Y. Stepanenko and J. Yuan **D** p535
New method of robust pole assignment by output feedback. J. Changsheng **D** p172
On the design of position control systems. J. Billingsley **D** p331
Optimal controller with prescribed dominant energy eigenvalues. C.M. Liaw **D** p405
Optimal model-following control of a positioning drive system with a permanent-magnet synchronous motor. P.M. Pelczewski, W. Oberschelp and U.H. Kunz **D** p267
Optimal tracking with previewed commands. M.E. Halpern **D** p237
Optimum selection of speed regulation parameters for automatic generation control in discrete mode considering generation rate constraints. L. Hari, M.L. Kothari and J. Nanda **C** p401
Refinements of the Ziegler–Nichols tuning formula. C.C. Hang, K.J. Åström and W.K. Ho **D** p111
Relationship of singular value stability robustness bounds to spectral radius for discrete systems with application to digital filters. J.B. Farison and S.R. Kolla **G** p5
Robust low order dynamic controller for flexible spacecraft. M. Seetharama Bhat, A.G. Sreenatha and S.K. Shrivastava **D** p460
Role and objectives of control for wind turbines. W.E. Leithead, S. de la Salle and D. Reardon **C** p135
Rule based identifier for unknown systems. H. Wang and A.H. Jones **D** p500
Sensors for narrow-gap welding. B.J. Corlett, J. Lucas and J.S. Smith **A** p213
Single-channel controllability of interconnected systems. P. Fessas and M. Mansour **D** p207
Sliding mode control of remotely operated vehicles for horizontal plane motions. N. Olgac, B.E. Platin and J.-M. Chang **D** p469
Steady-state control of an induction motor by estimation of stator flux magnitude. B.W. Williams and T.C. Green **B** p69
Tracking periodic inputs using sampled compensators. G.F. Ledwich and A.G. Bolton **D** p242
Variable structure control strategy to automatic generation control of interconnected reheat thermal system. D. Das, M.L. Kothari, D.P. Kothari and J. Nanda **D** p579

CONTROL THEORY

Adaptive general predictive controller for nonlinear systems. Q.M. Zhu, K. Warwick and J.L. Douce **D** p33
Common formalism for adaptive identification in signal processing and control. O. Macchi **F** p295
Composite dynamic and steady-state approach to stochastic optimising control of steady-state systems with output dependent constraints. J. Lin, M. Wang and P.D. Roberts **D** p123
Constrained receding-horizon predictive control. D.W. Clarke and R. Scattolini **D** p347
Decoupling of descriptor systems. N. Minamide, P.N. Nikiforuk and M.M. Gupta **D** p453
Design of integral variable structure controller and application to electrohydraulic velocity servosystems. T.-L. Chern and Y.-C. Wu **D** p439
Discrete-time optimal control for linear time-delay systems with deterministic disturbances. T.-T. Lee and C.-L. Shih **D** p573
Effects of lag controllers on transient response. W. Ali and J.H. Burghart **D** p119
Eigenstructure assignment in high-gain feedback systems. S. Sen and K.B. Datta **D** p165
Elevator scheduling system using blackboard architecture. G.K.H. Pang **D** p337
Generalised minimum-variance stochastic self-tuning controller with pole restriction. C.C. Hang, K.W. Lim and W.K. Ho **D** p25
Hybrid state-space self-tuning control using dual-rate sampling. L.S. Shieh, X.M. Zhao and J.W. Sunkel **D** p50
Identification for long-range predictive control. D.S. Shook, C. Mohtadi and S.L. Shah **D** p75
Integral equation approach to joint state and parameter estimation in continuous-time MIMO systems. S. Mukhopadhyay and G.P. Rao **D** p93
Iterative learning control method for discrete-time dynamic systems. D.-H. Hwang, Z. Bien and S.-R. Oh **D** p139
Linear feedback approach to the stabilisation of uncertain discrete systems. E. Gyurkovics **D** p507
Multivariable and multirate self-tuning control: a distillation column case study. M.T. Tham, F. Vagi, A.J. Morris and R.K. Wood **D** p9
Multivariable decoupling pole assignment self-tuning feedforward controller. Z.-L. Deng and X.-R. Huang **D** p85
Multivariable self-tuning regulator for load frequency control system with interaction of voltage on load demand. K. Yamashita and H. Miyagi **D** p177
New bound for the stability margin of linear continuous systems. V. Sreeram and P. Agathoklis **D** p151
Observations-weighted optimal control of a class of nonlinear systems. M.J. Grimble and S.A. Carr **D** p160
Parameter transient tracking for recursive estimation. R. Fernandez del Busto, P.E. Wellstead and M.B. Zarrop **D** p68
Petri nets based approach to software development for real-time control. P. Cofrancesco, A. Cristoforetti and R. Scattolini **D** p474
Phase margin of linear time invariant systems from Routh array. V. Krishnamurthi, W.K. Sa'id and N.A. Al-Awad **D** p410
RESCU: a real-time knowledge based system for process control. R. Leitch, R. Kraft and R. Luntz **D** p217
Rational function matrices and structural controllability and observability. K.S. Lu and J.N. Wei **D** p388
Recursive approach to optimal control problem of multiarea electric energy system. J.A. Momoh and X. Shen **D** p543
Refinements of the Ziegler–Nichols tuning formula. C.C. Hang, K.J. Åström and W.K. Ho **D** p111
Robust H_∞ control for class of uncertain linear time-invariant systems. L. Xie and C.E. de Souza **D** p479
Robust low order dynamic controller for flexible spacecraft. M. Seetharama Bhat, A.G. Sreenatha and S.K. Shrivastava **D** p460
Robustness effects of a prefilter in generalised predictive control. B.D. Robinson and D.W. Clarke **D** p2

CONVERTORS

Current programmed control nonresonant coupled parallel resonant convertor. C.Q. Lee and S. Sooksatra **G** p372
Design and implementation of a single phase current-forced switching mode bilateral convertor. C.M. Liaw, T.H. Chen, T.C. Wang, G.J. Cho, C.M. Lee and C.T. Wang **B** p129
Design of circularly symmetric two- and three-dimensional digital filters using the concept of the GIC. T. Venkateswarlu, C. Eswaran and A. Antoniou **G** p523
Design of current source using 12-pulse phase-controlled rectifier. B.H. Kwon and E.H. Song **B** p185
Digital 'bridge' for comparison of AC–DC transfer instruments. R.B.D. Knight, D.J. Legg and P. Martin **A** p169
Electrical characteristics of alternative recovery convertors for slip-energy recovery drives. B.A.T. Al Zahawi, B.L. Jones and W. Drury **B** p193
High-frequency link parallel resonant convertor with fourth-order commutation network. I.E. Batarseh and C.Q. Lee **G** p34
Novel full bridge semicontrolled switch mode rectifier. S. Manias **B** p252
Parallel-mode extended-period quasiresonant convertor. K.W.E. Cheng and P.D. Evans **B** p243
Pulse doubling in parallel convertor configurations with interphase reactors. J. Arrillaga and M.E. Villablanca **B** p15
Reduction of proximity losses in coupled inductors. P.D. Evans and W.M. Chew **B** p51
Saturable reactor assisted soft-switching full-bridge DC–DC power convertors. S. Hamada, Y. Ogino and M. Nakaoka **B** p95
Single-phase sinusoidal rectifier with step-up/down characteristics. R. Itoh and K. Ishizaka **B** p338
State plane approach to frequency response of resonant convertors. C.Q. Lee, K. Siri and S.J. Fang **G** p557
Switched-capacitor pipelined logarithmic A/D and D/A convertors. M.-H. Cheng and T.-C. Huang **G** p714
Three-phase flyback AC-DC convertor with sinusoidal supply currents. R. Itoh and K. Ishizaka **B** p143
Use of current comparators in the calibration of AC–DC transfer standards. R.B.D. Knight, D.J. Legg and P. Martin **A** p101

CROSSTALK

Test pattern generation for logic crosstalk faults in VLSI circuits. A. Rubio, J.A. Sainz and K. Kinoshita **G** p179

CYBERNETICS AND ROBOTICS

Adaptive control of a single-link flexible manipulator with unknown load. T.-C. Yang, J.C.S. Yang and P. Kudva **D** p153
Asymptotic observer design for constrained robot systems. H.-P. Huang and W.-L. Tseng **D** p211
Design of robotic discrete minimum energy regulator. Y. Bestaoui **D** p509
Distributed robot control on transputer network. A.M.S. Zalzala and A.S. Morris **E** p169
Initial condition problem of learning control. K.H. Lee and Z. Bien **D** p525
Model reference control of nonlinear plants with uncertain and unbounded terms. Y. Stepanenko and J. Yuan **D** p535
Sliding mode control of remotely operated vehicles for horizontal plane motions. N. Olgac, B.E. Platin and J.-M. Chang **D** p469

DELAY LINES

Constrained adaptation for time delay estimation with multipath propagation. P.C. Ching, Y.T. Chan and K.C. Ho **F** p453
Novel cell architecture for bit level systolic arrays multiplication. D. Ait-Boudaoud, M.K. Ibrahim and B.R. Hayes-Gill **E** p21

DESIGN

Algebra system for ECL circuits. X.W. Wu and X.X. Chen **G** p679
Constrained variance design for bilinear stochastic continuous systems. H.-Y. Chung and W.-J. Chang **D** p145
Controller design of multivariable variable structure systems with nonlinear switching surfaces. D.S. Lee, M.G. Kim, H.K. Kim and M.J. Youn **D** p493
Decentralised proportional-plus-integral design method for interconnected power systems. M. Aldeen and J.F. Marsh **C** p263
Design of FIR equalisers by sharpening identical subfilters. P.S.R. Diniz and J.C.E. Cabezas **G** p413
Design of contiguous RF filterbanks with application in channelised receivers. I.C. Hunter **F** p289
Design of digital differentiators satisfying prescribed specifications using optimisation techniques. S. Sunder, W.-S. Lu, A. Antoniou and Y. Su **G** p315
Design of surface-acoustic wave devices. R.C. Woods **A** p181
Expert system for SROOT. P.A. Muha **D** p381
Half-band filter design with odd-polynomial Chebyshev approximation. W.-T. Chang and M.-S. Lin **G** p492
High-fidelity finite-impulse-response filters with optimal stopbands. R.H. Wilkinson **G** p264
Minimum sensitivity IIR filter design using principal component approach. B.-S. Chen, B.-W. Chiou and S.-C. Peng **G** p474
Radar absorbers: better by design. K.C. Pitman, M.W. Lindley, D. Simkin and J.F. Cooper **F** p223
Tristage Hough transform for multiple ellipse extraction. H.K. Muammar and M. Nixon **E** p27

DETECTION

Analysis and detection algorithms for complex time zeros of bandlimited signals. Y.O. Al-Jalili **I** p189
CFAR detection of fluctuating targets in spatially correlated K-distributed clutter. B.C. Armstrong and H.D. Griffiths **F** p139
Detection of partial response signals using noise prediction techniques. D. Makrakis, A. Yongaçoğlu and K. Feher **I** p133
Differential detection of correlative encoded continuous phase modulation schemes using decision feedback. D. Makrakis and P.T. Mathiopoulos **I** p473
Multiplicative noise model and composite signal detection. I. Song and T.S. Uhm **F** p531
New approach to directional fault location for overhead power distribution feeders. A.T. Johns, L.L. Lai, M. El-Hami and D.J. Daruvala **C** p351
Performance of novel low intermediate frequency coherent optical DPSK receiver using baseband detection. B. Jensen, G. Jacobsen, E. Bødtker, B. Christensen and T. Skettrup **J** p401

Radar detection of signals with unknown parameters in K-distributed clutter. E. Conte, M. Longo, M. Lops and S.L. Ullo F p131
Reduced state sequence detection of partial response continuous phase modulation. A. Svensson I p256

DIELECTRIC MATERIALS

Analysis of infinite periodic array of thin wire radiators with dielectric loading. S. Singh and H.M. Mannaa H p207
Dependence of electrical tree inception and growth on mechanical properties. D.W. Auckland and B.R. Varlow A p51
Dispersion curves and fields for a chiral slab waveguide. M. Oksanen, P.K. Koivisto and I.V. Lindell H p327
Effect of a magnetic field on low-pressure gaseous breakdown along the surface of a solid insulator. M. Ohki and S. Saito A p300
High reliability photodetector with integral bandpass filter for receivers in passive optical networks. C.P. Skrimshire, M.D. Learmouth, N.P. Hewett and I. Reid J p191
Numerical solution to three-dimensional inverse scattering for dielectric reconstruction purposes. S. Caorsi, G.L. Gragnani and M. Pastorino H p497
Propagation and radiation characteristics of rectangular dielectric-loaded hybrid mode horn. E. Lier and C. Stoffels H p407
Rayleigh quotient solution of semivectorial field problems for optical waveguides with arbitrary index profiles. M.S. Stern J p185
Rigorous analysis of the TM_{0n} modes in a dielectric-post resonator with an annular slot in the upper plate. K.A. Michalski, X. Di and A.W. Glisson H p429
Some calculation methods and universal diagrams for measurement of dielectric constants using open-ended coaxial probes. Y. Xu, R.G. Bosisio and T.K. Bose H p356

DIGITAL CIRCUITS

Design of CMOS circuits. D. Radhakrishnan G p83
Digital 'bridge' for comparison of AC–DC transfer instruments. R.B.D. Knight, D.J. Legg and P. Martin A p169
Minimal synthesis of multivalued functions with new operators. F. Luccio and M.C. Pinotti E p419
Silicon implementations of neural networks. A.F. Murray F p3
Single chip 500 MHz function generator. P.H. Saul, W. Barber, D.G. Taylor and T. Ward G p239
Test pattern generation for logic crosstalk faults in VLSI circuits. A. Rubio, J.A. Sainz and K. Kinoshita G p179
Testing for stuck faults in CMOS combinational circuits. A.A. Ismaeel G p191
The fast Tamari transform. A. Lloris, J. Ortega and A. Prieto E p147

DIGITAL COMMUNICATION SYSTEMS

AGC strategy for adaptive digital modems employing cyclic channel estimation in an HF frequency hopping scenario. L.P. Linde I p185
Analysis of the error extension mechanisms within the European plesiochronous digital hierarchy. J.E. Deslandes, P. Cochrane and E.V. Jones I p280
Design of a fractional phase locked-loop frequency synthesiser using a Motorola based microcontroller. M.E. Rizkalla, H. Gundrum and H. Michel A p295
Differential detection of correlative encoded continuous phase modulation schemes using decision feedback. D. Makrakis and P.T. Mathiopoulos I p473
Digital matched-correlator automatic gain control scheme applicable to MFSK modems. F. Zolghadr and B. Honary I p123
Distributed double-phase switch. C.-M. Weng and C.-T. Hwang I p417
Equaliser techniques for QAM transmissions over dispersive mobile radio channels. W.T. Webb and R. Steele I p566
Estimation of unreliable packets in subband coding of speech. W.C. Wong, N. Seshadri and C.-E.W. Sundberg I p43
Fault-tolerant serial-parallel multiplier. L.G. Chen and T.H. Chen E p276
Fully transparent phase/Doppler invariant trellis-coded modulation. Y.-J. Liu and E. Biglieri I p105
Interference effect on the performance of PSK and QAM systems. J.C. Brandão I p331
Mathematical analysis of the three-ray dispersive fading channel model. H. Goldman I p87
Maximum likelihood synchronisers with arbitrary prior symbol probabilities. J.H. Chiu and L.S. Lee I p50
New high-speed adaptive frame synchronisers incorporating postdetection processing techniques. L.-K. Shark, T.J. Terrell and R.J. Simpson I p269
Performance evaluation of a composite microscopic plus macroscopic diversity system. A.M.D. Turkmani I p15
Performance of a carrier-recovery loop in a satellite modem. S.W. Cheung and A.P. Clark I p32
Queuing analysis of the selective repeat ARQ scheme. H. Lee and B. Ngo I p487
Simulation study of trellis-coded transceivers for high-bit rate digital subscriber loops. T.D. Bilodeau and W.A. Krzymien I p503
Solution for packet switching of broadband ISDN. C.-M. Weng and J.-J. Li I p394
Subjective quality quantification of digital voice communication systems. S. Dimolitsas I p585
Synchronisation of random bit sequences: application to hitless switching. I. Frigyes I p401
Throughput efficiency of a class of continuous ARQ schemes under Markovian error patterns. T.-H. Lee I p511

DIGITAL COMPUTERS AND COMPUTATION

CMOS VLSI design of a high-speed Fermat number transform based convolver/correlator using three-input adders. M. Benaissa, S.S. Dlay and A.G.J. Holt G p182
Discrete transform technique for solving coupled integro-differential equations in digital computers. S.Y.R. Hui and C. Christopoulos A p273
High-speed single error correcting convertor for residue number processing. C.N. Zhang and H.D. Cheng E p177
Noise analysis for digit slicing FFT. Z.A.M. Sharrif, M. Othman and T.S. Theong F p509
Novel approach for implementing convolutions with small tables. A. Skavantzos E p255
Performance estimation of semirandom data transfer within direct hypercube interconnection network. A. Shaout and D. Smyth E p213
Pseudorandom number generators for VLSI systems based on linear cellular automata. Ph. Tsalides, T.A. York and A. Thanailakis E p241
Tracking periodic inputs using sampled compensators. G.F. Ledwich and A.G. Bolton D p242

DIGITAL FILTERS

Design of 2-D linear phase variable recursive digital filters for parallel form implementation. A.O. Hussein and M.M. Fahmy G p335
Design of circularly symmetric two- and three-dimensional digital filters using the concept of the GIC. T. Venkateswarlu, C. Eswaran and A. Antoniou G p523
Design of efficient second and higher degree FIR digital differentiators for midband frequencies. M.R.R. Reddy, S.C. Dutta Roy and B. Kumar G p29
Genetic algorithm in the design of FIR filters. D. Suckley G p234
Improved minimax optimisation algorithms and their application in the design of recursive digital filters. A. Antoniou G p724
Low-sensitivity structure for 1-D and 2-D digital FIR filters. M. Domański G p229
New method for the elimination of two-dimensional limit cycles in first order structures. D.C. McLernon G p541
Primitive operator digital filters. D.R. Bull and D.H. Horrocks G p401
Relationship of singular value stability robustness bounds to spectral radius for discrete systems with application to digital filters. J.B. Farison and S.R. Kolla G p5
Simple sufficient test for stability of two-dimensional recursive digital filters. M. Benidir G p731

DIGITAL-ANALOGUE CONVERSION

Design of a fractional phase locked-loop frequency synthesiser using a Motorola based microcontroller. M.E. Rizkalla, H. Gundrum and H. Michel A p295

DIODES

Absorptive bistability in inhomogeneously pumped quantum well laser diodes. I. Middlemast, J. Sarma, K.A. Shore, A.I. Kucharska, E.D. Fletcher and P. Blood J p301
Amorphous Si/SiC phototransistors and avalanche photodiodes. C.Y. Chang, J.W. Hong and Y.K. Fang J p226
Emission spectral width broadening for InGaAsP/InP superluminescent diodes. O. Mikami, Y. Noguchi, H. Yasaka, K. Magari and S. Kondo J p133
Evaluation of semiconductor optical parameters for laser diodes. M. Estéban and J. Arnaud J p79
High repetition rate operation of bistable laser diodes. T. Odagawa, T. Machida, T. Sanada, K. Nakai, K. Wakao and S. Yamakoshi J p75
Microwave impedance measurements on resonant tunnelling diodes and network model parameter extraction. M.F.C. Schemmann, H.C. Heyker, J.J.M. Kwaspen and Th.G. van de Roer H p248
Mode competition and switching in three section DBR tunable lasers. I. Maio, G.P. Bava and I. Montrosset J p52
Model for microwave mode-locking of a laser diode by current modulation. J. Chesnoy J p47
Numerical simulation of avalanche photodiodes with guard ring. J. Harari, D. Decoster, J.P. Vilcot, B. Kramer, C. Oguey, P. Salsac and G. Ripoche J p211
Spectral analysis of diode lasers by measurement of polarisation rotation in a birefringent fibre. A.S. Davison and I.H. White J p148
Spectral output of 1.3 μm InGaAsP semiconductor diode lasers. F.H. Peters and D.T. Cassidy J p195
Study of varactor tuned microstrip rhombic resonators. S.H. Al-Charchafchi and P. Kanakaris H p383

DOPING

Characteristics of GaAs graded-period delta-doped superlattice. W.-C. Liu, C.-Y. Sun and W.-S. Lour G p629
Characteristics of δ-doped FETs in GaAs. H.C. Nutt, K. Board and R. Smith G p633
Observation of multi-state negative differential conductivity in periodic delta-doped superlattice. W.-C. Liu, C.-Y. Sun and W.-S. Lour G p424

EDDY CURRENTS

Critical torque and speed of eddy current brake with widely separated soft iron poles. J.H. Wouterse B p153
Magnetic field and eddy current losses in linear and rotating permanent magnet machines with a large number of poles. Z.J. Liu, A. Vourdas and K.J. Binns A p289
Measurement of eddy-current damping of small synchronous generator with two types of cylindrical solid rotor. R.L. Stoll and N.A.M. Abbas C p199
Reduction of proximity losses in coupled inductors. P.D. Evans and W.M. Chew B p51
Response of horizontal axis eddy current coils to layered media: a theoretical and experimental study. R. Clark and L.J. Bond A p248
Time domain model for the ferromagnetic core, including the effects of hysteresis and eddy currents. S.R. Naidu A p44
Transient electromagnetic shielding in a system of two coaxial cylindrical shells. C.S. Antonopoulos, S.M. Panas and E.E. Kriezis A p281

ELECTROMAGNETIC COMPATIBILITY

Electromagnetic interference of a plane wave incident on superstrate-loaded microstrip circuits. K.-L. Wong H p455

ELECTROMAGNETIC THEORY

Analysis of multilayer rotor induction motor with higher space harmonics taken into account. J.F. Gieras B p59
Discrete complex images of a three-dimensional dipole above and within a lossy ground. J.J. Yang, Y.L. Chow and D.G. Fang H p319
Electromagnetic energy changes due to charges moving through constant, or zero, magnetic field. C.J. Carpenter A p55
Electromagnetic scattering from bodies symmetric with respect to mutually orthogonal planes. R. Vescovo H p361
Electromagnetic surface impedance of an anisotropic cylinder. J.R. Wait A p184

Electromagnetic wave propagation along a chiral slab. H. Cory and I. Rosenhouse H p51
Elimination of false singularities in GTD equivalent edge currents. M. Ando, T. Murasaki and T. Kinoshita H p289
Finite element method for electromagnetic scattering in a lossy medium. F. Farail, A. Roger and M. Bouthinon H p201
Flanged parallel-plate waveguide coupled to a conducting cylinder. C.M. Butler, C.C. Courtney, P.D. Mannikko and J.W. Silvestro H p549
High frequency surface currents induced on a soft-hard cylindrical strip. Ç. Göksu and F. Güneş A p113
Isolation of the travelling wave contribution to the backscatter pattern of conducting cylinders. M.C. de Villiers and J.A.G. Malherbe H p417
Iterative solution of the scattering by an arbitrary configuration of conducting or dielectric spheres. A.-K. Hamid, I.R. Ciric and M. Hamid H p565
Marching-on-in-frequency method for solving integral equations in transient electromagnetic scattering. A.G. Tijhuis and Z.Q. Peng H p347
Matrix interpretation of the spectral iteration technique for 3D dielectric scatterers in the resonance region. A. McCowen and T.V. Tran H p219
NEMP-interaction with plane multilayer structures. W. Blumer and N. Ari A p199
Numerical modelling technique for the radiation of wire antennas near conducting surfaces. M.A. Hassan H p225
Propagation in cylindrical guides with gyroelectric core and cladding. P.G. Cottis J p383
Response of horizontal axis eddy current coils to layered media: a theoretical and experimental study. R. Clark and L.J. Bond A p248
Scalar wave scattering by a rough spere: Bourret's approximation for the coherent field of a point source. A.S. Bryukhovetski and L.A. Pazynin H p147
Scattering by a buried conducting object of general shape at low frequencies. A. Helaly, A. Sebak and L. Shafai H p213
Scattering by a perfectly conducting finite size vertical rectangular plate. J. Gong, N.D. Jayasundere, T.S.M. MacLean and Z. Wu H p137
Scattering from an impedance cylinder embedded in a nonconcentric dielectric cylinder. R.P. Parrikar, A.A. Kishk and A.Z. Elsherbeni H p169
Scattering of a transient electromagnetic wave by a dielectric sphere. M.S. Aly and T.T.Y. Wong H p192
TEM wave current distribution on two coaxial arc strips. J. Zehentner H p277
TM diffraction by a partly leaky halfplane. S.A. Bokhari, M. Keer and F.E. Gardiol H p397
Transient electromagnetic shielding in a system of two coaxial cylindrical shells. C.S. Antonopoulos, S.M. Panas and E.E. Kriezis A p281
Two stage computation of apertures in finite screens. R. Kastner and N. Herscovici H p435
Use of frequency-derivative information in two-dimensional electromagnetic scattering problems. X. Yang and E. Arvas H p269

ELECTRON DEVICES

Trap-related effects in AlGaAs/GaAs HEMTs. C. Canali, F. Magistrali, A. Paccagnella, M. Sangalli, C. Tedesco and E. Zanoni G p104

ENERGY CONVERSION AND STORAGE

24-pulse HVDC conversion. J. Arrillaga and M. Villablanca C p57
MHD arcjet onset studies. T.S. Sheshadri A p286
Role and objectives of control for wind turbines. W.E. Leithead, S. de la Salle and D. Reardon C p135
Small rating capacitive energy storage for dynamic performance improvement of automatic generation control. S.C. Tripathy, R. Balasubramanian and P.S. Chandramohanan Nair C p103

ENGINEERING AND SOCIETY

Electrical engineering; the backbone of society. D.A. Jones A p1

ERRORS AND ERROR ANALYSIS

Analysis of the error extension mechanisms within the European plesiochronous digital hierarchy. J.E. Deslandes, P. Cochrane and E.V. Jones I p280
Estimation of unreliable packets in subband coding of speech. W.C. Wong, N. Seshadri and C.-E.W. Sundberg I p43
High-speed single error correcting convertor for residue number processing. C.N. Zhang and H.D. Cheng E p177
Implementation of Berlekamp–Massey algorithm without inversion. Y. Xu I p138
New practical method for measurement error determination in radar systems under real traffic conditions. C. Feijoó, A. Asensio and F. Pérez F p525
Operation of HDLC ABM in harsh error environments: a robust extension. G. Fairhurst I p291
Queuing analysis of the selective repeat ARQ scheme. H. Lee and B. Ngo I p487
Throughput efficiency of a class of continuous ARQ schemes under Markovian error patterns. T.-H. Lee I p511

FAULT DETECTION

Design and testing of easily testable PLA. M. Abdul Mottalib and P. Dasgupta E p357
Fault simulation in CMOS VLSI circuits. M.E. Zaghloul and D. Gobovic E p203
Fault-tolerant serial-parallel multiplier. L.G. Chen and T.H. Chen E p276
Geometric approach for fault diagnosis in linear dynamic control systems. J.H. Kim and Z. Bien D p293
New approach to synthesis of self-checking microprogrammed control units with specified fault-detection probabilities. S.N. Demidenko, E.M. Levin and K.V. Lever E p389
Testing for stuck faults in CMOS combinational circuits. A.A. Ismaeel G p191

FAULT LOCATION

Analysis of distribution transformers under fault conditions for determination of transient recovery voltage. O. Bottauscio, G. Crotti, G. Farina and E. Vecchiotti C p253
Analytical expressions for evaluating screening effect of transmission line earth wire. Lj.M. Popović C p289
Approach for the reconfiguration of multipipeline arrays. P. Koo, F. Lombardi and Y.-N. Shen E p131
Inductive fault analysis revisited. F. Corsi and C. Morandi G p253
New approach to directional fault location for overhead power distribution feeders. A.T. Johns, L.L. Lai, M. El-Hami and D.J. Daruvala C p351
New decomposition-aggregation approach applied to power system with speed governor. H. Shaaban C p434
Single shunt fault diagnosis in ladder structures with a new series of numbers. S.K. Dana and D. Patranabis G p38

FEEDBACK

Algorithm to produce a system of type number *m* using state variable feedback. M. O'Malley D p193
Chaos prediction in nonlinear feedback systems. R. Genesio and A. Tesi D p313
Decoupling and pole assignment in generalised state space systems. P.N. Paraskevopoulos and F.N. Koumboulis D p547
Eigenstructure assignment in high-gain feedback systems. S. Sen and K.B. Datta D p165
Feedback stabilisation of synchronous generator by extended linearisation. P. Woźniak and K. Kuźmiński D p363
Gradient-based adaptive algorithms for systems with external feedback paths. S.J. Flockton F p308
Linear feedback approach to the stabilisation of uncertain discrete systems. E. Gyurkovics D p507
Neural controller based on back-propagation algorithm. M. Saerens and A. Soquet F p55
New method of robust pole assignment by output feedback. J. Changsheng D p172
Sequential design of multivariable control systems. J. Van de Vegte D p103
Stabilisation of fundamental-lateral-mode oscillations using optical feedback within an integrated amplifier/laser array. S. Mukai, M. Watanabe, H. Itoh and H. Yajima J p97
Steady-state control of an induction motor by estimation of stator flux magnitude. B.W. Williams and T.C. Green B p69
Wavelength tunable DFB and DBR lasers for coherent optical fibre communications. Y. Kotaki and H. Ishikawa J p171

FERRITES AND FERROMAGNETICS

Ferroresonance in power systems: Fundamental solutions. J.R. Marti and A.C. Soudack C p321
Generalised field theory of irregular waveguide partially filled with longitudinally magnetised ferrite. Y. Rong, W.-B. Dou and S.-F. Li H p412
Time domain model for the ferromagnetic core, including the effects of hysteresis and eddy currents. S.R. Naidu A p44

FIELD-EFFECT TRANSISTORS

Characteristics of δ-doped FETs in GaAs. H.C. Nutt, K. Board and R. Smith G p633
Small signal nonquasistatic models for GaAs field effect transistors for implementation in SPICE. Part I: Modulation-doped field effect transistors (MODFETs). H.-K. Lin and I.M. Abdel-Motaleb G p735
Small signal nonquasistatic models for GaAs field effect transistors for implementation in SPICE. Part II: Metal semiconductor field effect transistors (MESFETs). H.-K. Lin and I.M. Abdel-Motaleb G p749

FILTERS AND FILTERING

Adaptive airborne MTI with two-dimensional motion compensation. R. Klemm F p551
Adaptive detection using least-square filters. A. Reichman I p239
Adaptive equalisation via Kalman filtering techniques. S. McLaughlin F p388
Adaptive filter theory — not just an LMS. G. Gibson and S. McLaughlin F p293
Analysis of a first order complex recursive LMS adaptive predictor. N.J. Bershad F p321
Application of a systolic macrocell-based VLSI design style to the design of a single-chip high-performance FIR filter. R. Roncella, R. Saletti, P. Terreni and D. Piatelli G p17
CCII-based continuous-time filters with reduced gain-bandwidth sensitivity. S.-I. Liu, H.-W. Tsao and J. Wu G p210
Carrier recovery and filtering in optical BPSK heterodyne systems disturbed by phase noise from external cavity semiconductor lasers. J.J.O. Pires and J.R. Ferreira da Rocha J p284
Comparison of computer-aided tuning algorithms applied to the amplitude response of passive analogue filters. B.W. Jervis and M. Crofts G p363
Computationally efficient QR decomposition approach to least squares adaptive filtering. I.K. Proudler, J.G. McWhirter and T.J. Shepherd F p341
Design of FIR equalisers by sharpening identical subfilters. P.S.R. Diniz and J.C.E. Cabezas G p413
Design of contiguous RF filterbanks with application in channelised receivers. I.C. Hunter F p289
Design of partial response data transmission filters with specified stopband attenuation. D.-Y. Yu, S.-Q. Wu and L.-M. Li G p347
Effectiveness of multinotch logic-product polarisation filters in radar for countering rain clutter. A.J. Poelman and C.J. Hilgers F p427
Equaliser techniques for QAM transmissions over dispersive mobile radio channels. W.T. Webb and R. Steele I p566
Extended Remez algorithms for filter amplitude and group delay approximation. R.K. Henderson, Li Ping and J.I. Sewell G p289
Fully decentralised algorithm for multisensor Kalman filtering. B.S. Rao and H.F. Durrant-Whyte D p413
Gradient-based adaptive algorithms for systems with external feedback paths. S.J. Flockton F p308
Half-band filter design with odd-polynomial Chebyshev approximation. W.-T. Chang and M.-S. Lin G p492
High-fidelity finite-impulse-response filters with optimal stopbands. R.H. Wilkinson G p264
Identification for long-range predictive control. D.S. Shook, C. Mohtadi and S.L. Shah D p75
Influence of Poisson filter constant on estimation of continuous-time models. B.K. Roy, V.N. Bapat and D.C. Saha D p586
Minimum sensitivity IIR filter design using principal component approach. B.-S. Chen, B.-W. Chiou and S.-C. Peng G p474
New folded cascode transconductor for bandpass ladder filters. N.P.J. Greer and P.B. Denyer G p551

New method of designing adaptive nonlinear filters. K. Deergha Rao and D.C. Reddy **F** p513
Nonlinear distortion of an FM signal by a passive network. M.T. Abuelma'atti **G** p61
Optimal tracking with previewed commands. M.E. Halpern **D** p237
Robustness effects of a prefilter in generalised predictive control. B.D. Robinson and D.W. Clarke **D** p2
Steady-state superiority of LMS over LS for time-varying line enhancer in noisy environment. O. Macchi, N. Bershad and M. Mboup **F** p354
Towards optimum multilayer filter design. T.C. Chen **J** p241
Underwater target tracking via the IRWLS filtering approach. F. El-Hawary and G.A.N. Mbamalu **F** p459

GENERATORS

Application of superconducting magnetic energy storage unit on damping of turbogenerator subsynchronous oscillation. Y.-S. Lee and C.-J. Wu **C** p419
Artificial intelligence algorithm for daily scheduling of thermal generators. K.P. Wong and K. Doan **C** p518
Capacitance requirements for three phase self-excited reluctance generators. A.I. Alolah **C** p193
Damping of synchronous generator by static reactive power compensator with digital controller. C.-J. Wu and Y.-S. Lee **C** p427
Effects of underexcitation limiters on operation of remote generating station. S.S. Choi, R. Larkin, M.T. Bastick and A.W. Ferres **C** p560
Identification of coherent generators for power system dynamic equivalents using unstable equilibrium point. M.H. Haque **C** p546
Measurement of eddy-current damping of small synchronous generator with two types of cylindrical solid rotor. R.L. Stoll and N.A.M. Abbas **C** p199
Modified loss coefficients in the determination of optimum generation scheduling. D. Hazarika and P.K. Bordoloi **C** p166
Reliability assessment of hydrothermal generation systems containing pumped storage plant. R.N. Allan and J. Roman **C** p471
Slot discharge damage in air cooled stator windings. A. Wilson **A** p153
Studies on asynchronous operation of synchronous machines and related shaft torsional stresses. M.A. Masrur, A.K. Ayoub and J.T. Tielking **C** p47
Variation of turbogenerator stator core vibration with load. A.A. Tampion, R.L. Stoll and J.K. Sybulski **C** p389

GRAPH THEORY AND TOPOLOGY

Border marriage: matching of contours of serial sections. T.D. Haig, Y. Attikiouzel and M. Alder **I** p371
Dimension of the speech space. M.D. Alder, R. Togneri and Y. Attikiouzel **I** p207
Direct solution of distribution systems. S.K. Goswami and S.K. Basu **C** p78
Hypercube concurrent processor implementation of a position invariant object classifier. M. Celenk and S.R. Datari **E** p73
Image registration using an image graph and its application to map matching. K. Fukunaga, H. Murata, T. Asano and M. Izumi **E** p79
Use of common factors in numerical synthesis of RLC one ports. B. Shahzadi **G** p427

GUNN DEVICES

Field impoverishment modes in a diode with an $Al_xGa_{1-x}As/GaAs$ heterojunction: a simulation analysis. C.F. Fernandes and H.A. Santos **G** p91

HISTORY

Electrical engineering; the backbone of society. D.A. Jones **A** p1

HYDROELECTRIC POWER GENERATION

Frequency and duration method for reliability evaluation of large-scale hydrothermal generating systems. A.M. Leite da Silva, A.C.G. Melo and S.H.F. Cunha **C** p94

HYSTERESIS

Analysis of transient behaviour of power system circuits containing iron cored coils. S. Ray **C** p275
Characteristics of GaAs graded-period delta-doped superlattice. W.-C. Liu, C.-Y. Sun and W.-S. Lour **G** p629
Time domain model for the ferromagnetic core, including the effects of hysteresis and eddy currents. S.R. Naidu **A** p44
V curve of hysteresis motor. T. Ishikawa and T. Kataoka **B** p137

IMAGE PROCESSING

Analysis and VLSI architecture of a nonlinear edge-preserving noise-smoothing image filter. Y. Papananos and D. Anastassiou **G** p433
Border marriage: matching of contours of serial sections. T.D. Haig, Y. Attikiouzel and M. Alder **I** p371
Comparing coding efficiency of vector chain coding and run-length coding for line drawings. Kun Liu and Ramjee Prasad **I** p363
Dynamic address-vector quantisation of RGB colour images. Y.S. Feng and N.M. Nasrabadi **I** p225
Extending parallelism to memory hierarchies in massively parallel systems. K.H. Al-Saqabi and E.W. Davis **E** p193
Fast algorithm for VQ codebook design. S.-H. Chen and W.M. Hsieh **I** p357
Geometrical testing of three-dimensional objects with the aid of pattern recognition. J.P. Cosmas and R. Hibberd **E** p250
Heuristic search approach to shape matching in image sequences. S. Chaudhury, S. Subramanian and G. Parthasarathy **E** p97
Hypercube concurrent processor implementation of a position invariant object classifier. M. Celenk and S.R. Datari **E** p73
Image registration using an image graph and its application to map matching. K. Fukunaga, H. Murata, T. Asano and M. Izumi **E** p79
Mini-max algorithm for image adaptive vector quantisation. S. Panchanathan and M. Goldberg **I** p53
Motion detection and estimation of multiple moving objects in an image sequence using the cosine area transform (CAT). S.A. Mahmoud **I** p351
Multipeak histogram analysis in region splitting: a regularisation problem. S. Pal and P. Bhattacharyya **E** p285
New parallel Hough transform for circles. R. Chan and W.C. Siu **E** p335
Parallel implementation of a fast thinning algorithm using image compression. L. Hayat, A. Naqvi and M.B. Sandler **I** p615
Removal of subjective redundancy from DCT-coded images. D.L. McLaren and D.T. Nguyen **I** p345
Two-stage convolver-based DCT and IDCT algorithms. J.-L. Wu, S.-H. Hsu and W.-J. Duh **I** p611
VLSI implementation of smart imaging system using two-dimensional cellular automata. A.P. Marriott, Ph. Tsalides and P.J. Hicks **G** p582

INDUCTION MOTORS

Accurate measurement of induction motor losses using balance calorimeter. D.R. Turner, K.J. Binns, B.N. Shamsadeen and D.F. Warne **B** p233
Analysis of multilayer rotor induction motor with higher space harmonics taken into account. J.F. Gieras **B** p59
Balanced operation of three-phase induction motor with asymmetrical stator windings connected to single-phase supply system. A. Tozune **B** p167
Calculation of cage induction motor equivalent circuit parameters using finite elements. S. Williamson and M.J. Robinson **B** p264
Characteristics of a squirrel cage induction motor. C.G. Hong, S.C. Ho and G.J. Hwang **B** p115
High-speed reluctance machines with mixed-pole windings. Z. Zuncheng and E. Spooner **B** p257
Lumped parameter thermal model for electrical machines of TEFC design. P.H. Mellor, D. Roberts and D.R. Turner **B** p205
Modelling of vector controlled cage induction motor with FEM. B. Lemaire-Semail, F. Bouillault and A. Razek **B** p297
Nonlinear complex finite-element analysis of squirrel cage induction motor performance. C.-G. Hong and G.-J. Hwang **B** p277
Steady-state control of an induction motor by estimation of stator flux magnitude. B.W. Williams and T.C. Green **B** p69
Use of 3-dimensional finite elements for computation of temperature distribution in the stator of an induction motor. D. Sarkar, P.K. Mukherjee and S.K. Sen **B** p75

INSTRUMENTATION AND MEASURING SCIENCE

Accurate measurement of induction motor losses using balance calorimeter. D.R. Turner, K.J. Binns, B.N. Shamsadeen and D.F. Warne **B** p233
Cost 217 intercomparison and analysis of fibre mode field diameter measurements. COST 217 Group **J** p373
Design of digital differentiators satisfying prescribed specifications using optimisation techniques. S. Sunder, W.-S. Lu, A. Antoniou and Y. Su **G** p315
Design of millimetre wave grooved targets. N.J. Cronin, N. Athamena and D. Tinkler **F** p576
Digital 'bridge' for comparison of AC–DC transfer instruments. R.B.D. Knight, D.J. Legg and P. Martin **A** p169
Evaluation of packaging strays in discrete semiconductor devices. J. Rodriguez-Tellez and A.K. Baloch **G** p501
High resolution RCS measurements of boats. T.T. Moon and P.J. Bawden **F** p218
Incorporating high reliability into the design of microprocessor-based instrumentation. I.A. Henderson, J. McGhee, W. Szaniawski and P. Domaradzki **A** p105
Measurement of the load admittance and reactive current RMS value in the frequency domain. J.C. Montaño, M.C. Ibáñez, A.L. Ojeda and J.G. Benítez **A** p138
Measurement of thermal transients in a thermal print head used for dye diffusion colour printing. P.W. Webb and R.A. Hann **A** p98
Microwave sensor for moisture measurements in solid materials. T. Lasri, B. Dujardin and Y. Leroy **H** p481
New method for monitoring and protection of high voltage switchyards. D.W.E. Blatt **C** p228
Physically-based method for measuring the threshold voltage of MOSFETs. Z.X. Yan and M.J. Deen **G** p351
Present state of the electrical units. B.P. Kibble **A** p187
Response of horizontal axis eddy current coils to layered media: a theoretical and experimental study. R. Clark and L.J. Bond **A** p248
Sounding techniques for wideband mobile radio channels: a review. J.D. Parsons, D.A. Demery and A.M.D. Turkmani **I** p437
Strip speed measurement using distributed infra-red detectors. E.M. Deeley and P. Kontopoulous **D** p395
Thermal imaging of electronic devices with low surface emissivity. P.W. Webb **G** p390
Transposition study and field measurements of long radial static-reactive power compensated transmission system. S.S. Choi and C.E. Carter **C** p337
Use of current comparators in the calibration of AC–DC transfer standards. R.B.D. Knight, D.J. Legg and P. Martin **A** p101

INSULATORS AND INSULATION

Charge deposition on an insulating spacer under impulse-voltage conditions. I. Al-Bawy and O. Farish **A** p145
Discharges in asymmetric cavities under AC stresses. G. Robinson **A** p119
Effect of a magnetic field on low-pressure gaseous breakdown along the surface of a solid insulator. M. Ohki and S. Saito **A** p300
Erosive failure caused by surface discharge on the surface of epoxy resin immersed in insulating oil. T. Ikejiri and A. Kawamoto **A** p288
Insulator flashover in SF_6 under impulse voltage conditions. I. Al-Bawy and O. Farish **A** p89
Slot discharge damage in air cooled stator windings. A. Wilson **A** p153

INTEGRATED CIRCUITS

Flip chip-bonded GaAs MMICs compatible with foundry manufacture. D.J. Warner, K.L. Pickering, D.J. Pedder, B.J. Buck and S.J. Pike **H** p74
Giga-bit rate receiver OEICs grown by OMVPE for long-wavelength optical communications. H. Hayashi, H. Yano, K. Aga, H. Kamei and G. Sasaki **J** p164
Hebbian plasticity in MOS synapses. H.C. Card, C.R. Schneider and W.R Moore **F** p13
InP-based photonic integrated circuits. T.L. Koch and U. Koren **J** p139
Inductive fault analysis revisited. F. Corsi and C. Morandi **G** p253
Low-frequency gain-enhanced CMOS operational amplifier. S. Aggarwal and A.B. Bhattacharyya **G** p170
Silicon implementations of neural networks. A.F. Murray **F** p3
Single chip 500 MHz function generator. P.H. Saul, W. Barber, D.G. Taylor and T. Ward **G** p239
Solving the interconnection problem with a linked assembly of neural networks. A.D.P. Green and P.D. Noakes **F** p63

Statistical and numerical method for MOSFET integrated-circuit sensitivity simulation using SPICE. W.W. Wong, R.S. Winton and J. Liou G p77

LASERS

Absorptive bistability in inhomogeneously pumped quantum well laser diodes. I. Middlemast, J. Sarma, K.A. Shore, A.I. Kucharska, E.D. Fletcher and P. Blood J p301
Buried ridge stripe 1.5 μm GaInAsP/InP laser-waveguide integration by a simplified process. D. Remiens, V. Hornung, B. Rose and D. Robein J p57
Emission spectral width broadening for InGaAsP/InP superluminescent diodes. O. Mikami, Y. Noguchi, H. Yasaka, K. Magari and S. Kondo J p133
GaAs/AlGaAs quantum well laser for high-speed applications. H. Lang, H.D. Wolf, L. Korte, H. Hedrich, C. Hoyler and C. Thanner J p117
High repetition rate operation of bistable laser diodes. T. Odagawa, T. Machida, T. Sanada, K. Nakai, K. Wakao and S. Yamakoshi J p75
Mode competition and switching in three section DBR tunable lasers. I. Maio, G.P. Bava and I. Montrosset J p52
Model for microwave mode-locking of a laser diode by current modulation. J. Chesnoy J p47
Multichannel grating cavity (MGC) laser transmitter for wavelength division multiplexing applications. K.O. Nyairo, I.H. White, P.A. Kirkby and C.J. Armistead J p337
Simultaneous self-starting additive pulse mode-locking and second harmonic generation of an Nd: YAG laser using self-organised germanosilicate optical fibres. J.P. Bernardin and N.M. Lawandy J p281
Spectral analysis of diode lasers by measurement of polarisation rotation in a birefringent fibre. A.S. Davison and I.H. White J p148
Stabilisation of fundamental-lateral-mode oscillations using optical feedback within an integrated amplifier/laser array. S. Mukai, M. Watanabe, H. Itoh and H. Yajima J p97
Thermal index guiding in (AlGa)As proton-isolated lasers: its origins and reduction by post-implantation heat treatment. A. Malag, K. Czarnecki and K. Fronc J p13
Vector modulation of split-contact DFB lasers. W.B. Hale, H. Sundaresan, I.D. Henning and J. Mellis J p109
Volterra series analysis of distortion in semiconductor laser diodes. H.M. Salgado and J.J. O'Reilly J p379
Wavelength tunable DFB and DBR lasers for coherent optical fibre communications. Y. Kotaki and H. Ishikawa J p171

LIGHTNING AND LIGHTNING PROTECTION

Function representation of lightning impulses produced by a testing circuit with continuity of voltages and currents at a tested object. R. Sobocki A p78

LOAD AND VOLTAGE REGULATION

Performance comparisons of AC load-flow techniques for real time applications. A. Mohamed C p457
Stability of loadflow techniques for distribution system voltage stability analysis. G.B. Jasmon and L.H.C.C. Lee C p479

LOGIC

Algebra system for ECL circuits. X.W. Wu and X.X. Chen G p679
Algorithm for generating optimal tests for exclusive-OR networks. W.H. Debany, C.R.P. Hartmann and T.J. Snethen E p93
An active beam-scanning optoelectronic logic gate. H. Itoh, S. Mukai, M. Watanabe, M. Mori and H. Yajima J p113
Boolean matrix transforms for the parity spectrum and minimisation of modulo-2 canonical expansions. P.K. Lui and J.C. Muzio E p411
Comments on 'systematic procedure for test generation of PAL based circuits'. A.S. Nale E p106
Computation of Reed-Muller expansions of incompletely specified Boolean functions from reduced representations. D. Varma and E.A. Trachtenberg E p85
Design and testing of easily testable PLA. M. Abdul Mottalib and P. Dasgupta E p357
Disjoint decomposition of Boolean functions. J. Poswig E p48
Efficient techniques in the sizing and constrained optimisation of CMOS combinational logic circuits. J.-S. Hwang and C.-Y. Wu E p154
Minimal synthesis of multivalued functions with new operators. F. Luccio and M.C. Pinotti E p419
Optical interconnections and optical digital computing based on the photonic parallel memory (PPM). K. Matsuda and J. Shibata J p67
Self-organising fuzzy logic control and application to muscle relaxant anaesthesia. D.A. Linkens and S.B. Hasnain D p274
Systematic realisation of binary and multivalued logic functions using charge coupled building blocks. H.M. Abd-El-Barr G p694
Test generation within an expert system environment. S.J. Cosgrove and G. Musgrave E p36

MAGNETIC DEVICES AND PROPERTIES

Current commands for high-efficiency torque control of DC shunt motor. S. Funabiki and T. Fukushima B p227
Forces on semi-infinite overlapping rectangular poles: infinity permeable against saturable case. W. O'Connor A p176
Implicit rotor-position sensing using motor windings for a self-commutating permanent-magnet drive system. K.J. Binns, D.W. Shimmin and K.M. Al-Aubidy B p28
Magnetic field and eddy current losses in linear and rotating permanent magnet machines with a large number of poles. Z.J. Liu, A. Vourdas and K.J. Binns A p289
Magnetism; it is permanent. K.J. Overshott A p22
Open loop stability characteristics of synchronous drive incorporating high field permanent magnet motor. P.H. Mellor, M.A. Al-Taee and K.J. Binns B p175

MAGNETIC FIELDS

Characteristics of a squirrel cage induction motor. C.G. Hong, S.C. Ho and G.J. Hwang B p115
Electromagnetic energy changes due to charges moving through constant, or zero, magnetic field. C.J. Carpenter A p55
New method for monitoring and protection of high voltage switchyards. D.W.E. Blatt C p228

MANAGEMENT

Engineering change; or is it change engineering? A personal perspective. D.R. Towill A p11

MATHEMATICAL TECHNIQUES

A Bayesian approach to high-resolution beamforming. J. Lasenby and W.J. Fitzgerald F p539
Adaptive equalisation via Kalman filtering techniques. S. McLaughlin F p388
Adaptive filter theory — not just an LMS. G. Gibson and S. McLaughlin F p293
Adaptive general predictive controller for nonlinear systems. Q.M. Zhu, K. Warwick and J.L. Douce D p33
Algebra system for ECL circuits. X.W. Wu and X.X. Chen G p679
Algorithm for generating optimal tests for exclusive-OR networks. W.H. Debany, C.R.P. Hartmann and T.J. Snethen E p93
Algorithm for high precision root finding from high order LPC models. M. Sandler I p596
Algorithm to produce a system of type number m using state variable feedback. M. O'Malley D p193
Alternative control strategies for rule-based transistor placement in CMOS VLSI design. R. Hoyle, A. Priest and G. Hetherington G 137
Analysis and detection algorithms for complex time zeros of bandlimited signals. Y.O. Al-Jalili I p189
Analysis of singular bilinear systems using Walsh functions. F.L. Lewis, B.G. Mertzios and W. Marszalek D p89
Application of generalised predictive control to a boiler-turbine unit for electricity generation. J.A. Rossiter, B. Kouvaritakis and R.M. Dunnett D p59
Application of pattern recognition techniques for online security-economy and reactive control of power systems. C.S. Chang C p1
Approach to automatic contingency selection by reactive type performance index. J.Z. Zhu and G.Y. Xu C p65
Artificial intelligence algorithm for daily scheduling of thermal generators. K.P. Wong and K. Doan C p518
Artificial neural networks in process engineering. M.J. Willis, C. Di Massimo, G.A. Montague, M.T. Tham and A.J. Morris D p256
Boolean matrix transforms for the parity spectrum and minimisation of modulo-2 canonical expansions. P.K. Lui and J.C. Muzio E p411
Calculation of cage induction motor equivalent circuit parameters using finite elements. S. Williamson and M.J. Robinson B p264
Channel-estimation-based adaptive DFE for fading multipath radio channels. P.K. Shukla and L.F. Turner I p525
Characteristics of a squirrel cage induction motor. C.G. Hong, S.C. Ho and G.J. Hwang B p115
Comments on 'Algorithm for reducing circuit equations in computer applications'. D.G. Bedrosian and J. Vlach G p733
Comments on 'Algorithm for reducing circuit equations in computer applications'. D.G. Bedrosian and J. Vlach G p733
Computationally efficient QR decomposition approach to least squares adaptive filtering. I.K. Proudler, J.G. McWhirter and T.J. Shepherd F p341
Constrained adaptation for time delay estimation with multipath propagation. P.C. Ching, Y.T. Chan and K.C. Ho F p453
Correlation decoding of the (24, 12) Golay code using neural networks. J. Yuan and C.S. Chen I p517
DOA estimation with unknown noise fields: a matrix decomposition method. R. Rajagopal and P Ramakrishna Rao F p495
Decomposition approach for minimising real power losses in power systems. N.I. Deeb and S.M. Shahidehpour C p27
Direct solution of distribution systems. S.K. Goswami and S.K. Basu C p78
Discrete transform technique for solving coupled integro-differential equations in digital computers. S.Y.R. Hui and C. Christopoulos A p273
Distributed robot control on transputer network. A.M.S. Zalzala and A.S. Morris E p169
Effect of errors in the plant model on the performance of algorithms for adaptive feedforward control. C.C. Boucher, S.J. Elliott and P.A. Nelson F p313
Effects of neglecting resistances in XB and BX load-flow methods. W. Hubbi C p452
Efficient algorithm for rational transformation on polynomials. S. Natarajan and P.K. Rajan G p530
Efficient economic dispatch algorithm for thermal unit commitment. K. Mohamed-Nor and A.H.A. Rashid C p213
Efficient flow control in a multiclass telecommunications environment. C. Douligeris and R. Mazumdar I p494
Eigenstructure assignment in high-gain feedback systems. S. Sen and K.B. Datta D p165
Evaluation of the impulse response energy of a 2-D linear discrete separable-denominator system. C. Hwang, T.-Y. Guo, L.-S. Shieh and C.-H. Chen G p125
Extended Remez algorithms for filter amplitude and group delay approximation. R.K. Henderson, Li Ping and J.I. Sewell G p289
Extended diagonal structure for address generation of the prime factor algorithm. D.P.-K. Lun and W.-C. Siu G p449
Families of sequences and arrays with good periodic correlation properties. D.H. Green and S.K. Amarasinghe E p260
Fast algorithm for VQ codebook design. S.-H. Chen and W.M. Hsieh I p357
Fast constant modulus adaptive algorithm. J. Benesty and P. Duhamel F p379
Fine grain mapping strategy for multiprocessor systems. J.J. Shieh and C.A. Papachristou E p109
Frequency and duration method for reliability evaluation of large-scale hydrothermal generating systems. A.M. Leite da Silva, A.C.G. Melo and S.H.F. Cunha C p94
Frequency-domain approach to state-space LQG self-tuning control. T.J. Moir D p372
Fully decentralised algorithm for multisensor Kalman filtering. B.S. Rao and H.F. Durrant-Whyte D p413
Gain margins and phase margins for sampled-data control systems with adjustable parameters. C.-H. Chang and K.-W. Han D p285
General approach for development of CAD-oriented analytical device models. C. Turchetti and M. Conti G p637
Generalised minimum-variance stochastic self-tuning controller with pole restriction. C.C. Hang, K.W. Lim and W.K. Ho D p25
Genetic algorithm in the design of FIR filters. D. Suckley G p234
Gradient-based adaptive algorithms for systems with external feedback paths. S.J. Flockton F p308
Heuristic model for task allocation in distributed computer systems. A.K. Sarje and G. Sagar E p313
Image registration using an image graph and its application to map matching. K. Fukunaga, H. Murata, T. Asano and M. Izumi E p79

Implementation of Berlekamp–Massey algorithm without inversion. Y. Xu I p138
Improved minimax optimisation algorithms and their application in the design of recursive digital filters. A. Antoniou G p724
Improved mixed-radix conversion for residue number system architectures. H.M. Yassine and W.R. Moore G p120
Improvement on the estimation of covariance matrices by incorporating cross-correlations. R.L. Kirlin and W. Du F p479
Improvements in HMM-based isolated word recognition system. A.M. Peinado, J.M. Lopez, V.E. Sanchez, J.C. Segura and A.J. Rubio Ayuso I p201
Inductive fault analysis revisited. F. Corsi and C. Morandi G p253
Integral equation approach to joint state and parameter estimation in continuous-time MIMO systems. S. Mukhopadhyay and G.P. Rao D p93
Integrating an expert system into a thermal unit-commitment algorithm. Md-Sayeed Salam, Abdul-Razak Hamdan and Khalid Mohamed Nor C p553
Iterative learning control method for discrete-time dynamic systems. D.-H. Hwang, Z. Bien and S.-R. Oh D p139
Iterative solution of the scattering by an arbitrary configuration of conducting or dielectric spheres. A.-K. Hamid, I.R. Ciric and M. Hamid H p565
Karhunen–Loeve method for data compression and speech synthesis. C.S. Chen and K.-S. Huo I p377
LMS adaptive algorithms for joint forward and decision feedback equalisation. D. Ernst F p520
Least sum of squared errors (LSSE) channel estimation. S.N. Crozier, D.D. Falconer and S.A. Mahmoud F p371
Matrix analysis of split coaxial balun. W.J. Louw H p378
Matrix interpretation of the spectral iteration technique for 3D dielectric scatterers in the resonance region. A. McCowen and T.V. Tran H p219
Maximally-flat rational approximation with multiple critical pole-pair. M. Biey, S. Coco and A. Premoli G p244
Measurement of the load admittance and reactive current RMS value in the frequency domain. J.C. Montaño, M.C. Ibáñez, A.L. Ojeda and J.G. Benítez A p138
Minimal-order polynomial satisfying the equality $c^T p(A) = 0$. L.A. Novak and Z.M. Ranic G p129
Motion detection and estimation of multiple moving objects in an image sequence using the cosine area transform (CAT). S.A. Mahmoud I p351
Multivariable decoupling pole assignment self-tuning feedforward controller. Z.-L. Deng and X.-R. Huang D p85
Neural network architectures for content-addressable memory. L. Tarassenko, J.N. Tombs and J.H. Reynolds F p33
New algorithm for diakoptical static state estimation. S. Shahnawaz Ahmed and A. Brameller C p185
New approach to synthesis of self-checking microprogrammed control units with specified fault-detection probabilities. S.N. Demidenko, E.M. Levin and K.V. Lever E p389
New decomposition-aggregation approach applied to power system with speed governor. H. Shaaban C p434
New findings of convergence properties of fast decoupled load flow algorithms. J. Nanda, V. Bapi Raju, P.R. Bijwe, M.L. Kothari and Bashir M. Joma C p218
New iterative construction approach to routing with compacted area. C.-C. Tsai, S.-J. Chen, P.-Y. Hsiao and W.-S. Feng E p57
Nonlinear complex finite-element analysis of squirrel cage induction motor performance. C.-G. Hong and G.-J. Hwang B p277
Novel approach for implementing convolutions with small tables. A. Skavantzos E p255
On the convergence of matrix elements in planar and waveguide problems. R. Kastner H p532
Optimal controller with prescribed dominant energy eigenvalues. C.M. Liaw D p405
PACE: A regular array for implementing regularly and irregularly structured algorithms. A. Spray and S. Jones G p613
Parameter transient tracking for recursive estimation. R. Fernandez del Busto, P.E. Wellstead and M.B. Zarrop D p68
Plane-polar near-field to far-field transformation with three kinds of Fourier-Bessel eigenvalue expansions. C. Cao, E. Van Lil, A. Van de Capelle and K. Van 't Klooster H p463
Power generation scheduling through use of generalised network flow programming. R.E. Rice, W.M. Grady, W.G. Lesso, A.H. Noyola and M.E. Connolly C p39
Primitive operator digital filters. D.R. Bull and D.H. Horrocks G p401
Rational function matrices and structural controllability and observability. K.S. Lu and J.N. Wei D p388
Recursive SMLR deconvolution algorithm for Bernoulli–Gaussian signals. C.-Y. Chi and W.-T. Chen F p263
Recursive real-time calculation of basic waveforms of signals. K.-Fr. Eichhorn and T. Łobos C p469
Robust algorithm for state estimation in electrical networks. M.M. Smith, R.S. Powell, M.R. Irving and M.J.H. Sterling C p283
Robust identification of stochastic linear systems with correlated noise. C.-B. Feng and W.-X. Zheng D p484
Scalar wave scattering by a rough spere: Bourret's approximation for the coherent field of a point source. A.S. Bryukhovetski and L.A. Pazynin H p147
Scattering of a transient electromagnetic wave by a dielectric sphere. M.S. Aly and T.T.Y. Wong H p192
Self-adaptive design of a nonlinear temperature control system. A. Chotai, P.C. Young and M.A. Behzadi D p41
Self-tuning predictive PID controller. P. Vega, C. Prada and V. Aleixandre D p303
Simple but effective modification to a multiplicative congruential random-number generator. W.G. Chambers and Z.D. Dai E p121
Simulation of PM2I network by folded hypercube. S. Latifi E p397
Solution of the Lyapunov equation with system matrix in companion form. V. Sreeram and P. Agathoklis D p529
Statistical model for UHF radio-wave signals within externally illuminated multistorey buildings. P.J. Barry and A.G. Williamson I p307
Tagged systolic array. S. Sarkar and A.K. Majumdar E p289
Target tracking algorithms for phased array radar. D.J. Wilkin, I. Harrison and M.S. Woolfson F p255
The fast Tamari transform. A. Lloris, J. Ortega and A. Prieto E p147
Time domain model for the ferromagnetic core, including the effects of hysteresis and eddy currents. S.R. Naidu A p44
Tracking periodic inputs using sampled compensators. G.F. Ledwich and A.G. Bolton D p242
Tracking technique for manoeuvring target with correlated measurement noises and unknown parameters. J.-A. Guu and C.-H. Wei F p278
Transputer implementation of Kalman filters. L.P. Maguire and G.W. Irwin D p355
Two-dimensional off-state modelling of high-voltage semiconductor devices with floating guard rings. D.J. Byrne, M.S. Towers and K. Board G p109
Two-dimensional systolic array for the column-by-column QD algorithm. O. Brudaru and G.M. Megson E p401
Two-stage convolver-based DCT and IDCT algorithms. J.-L. Wu, S.-H. Hsu and W.-J. Duh I p611
Use of a highly deterministic multipath signal model in low-angle tracking. T. Lo and J. Litva F p163
VLSI design of inverse-free Berlekamp–Massey algorithm. I.S. Reed, M.T. Shih and T.K. Truong E p295
Wave packet with special relativity demonstrating quantum rules, Schrödinger's equation and propagator integral. I.S. Reed A p223
When do singular inputs of an LTI system not cause discontinuities in state variables?. L.A. Novak G p151

METAL-OXIDE-SEMICONDUCTOR STRUCTURES

Alternative control strategies for rule-based transistor placement in CMOS VLSI design. R. Hoyle, A. Priest and G. Hetherington G 137
Statistical and numerical method for MOSFET integrated-circuit sensitivity simulation using SPICE. W.W. Wong, R.S. Winton and J. Liou G p77
Threshold voltage and subthreshold slope of the volume-inversion MOS transistor. J. Brini, M. Benachir, G. Ghibaudo and F. Balestra G p133

MICROPROCESSORS

Concurrent self-checking for microprogrammed control units: an analytical survey. S.N. Demidenko, E.M. Levin and K.V. Lever E p377
Design and implementation of microprocessor based sliding mode controller for brushless servomotor. J.P. Karunadasa and A.C. Renfrew B p345
Incorporating high reliability into the design of microprocessor-based instrumentation. I.A. Henderson, J. McGhee, W. Szaniawski and P. Domaradzki A p105
Microprocessor based automatic sun tracker. A. Konar and A.K. Mandal A p237
Microprocessor design using silicon compiler. W.T. Webb and K.G. Nichols E p232
New protocol for multistage interconnection networks. N.M. Patel E p269
SWIFT: stack-based microprocessor for LISP and PROLOG. G. Knowles E p299

MICROSTRIP AND STRIPLINE

Electromagnetic interference of a plane wave incident on superstrate-loaded microstrip circuits. K.-L. Wong H p455
Memory controlled feedforward linear iser suitable for MMIC implementation. S. Kumar and G. Wells H p9
Modelling of multiple coupled concentric open and closed microstrip ring structure. S. Luo, M. Thorburn and V.K. Tripathi H p573
Optical control of wave propagation in microstrip-slot lines at D band. M. Tsutsumi, H. Shimasaki and G.B. Morgan H p527
Study of varactor tuned microstrip rhombic resonators. S.H. Al-Charchafchi and P. Kanakaris H p383

MICROWAVE CIRCUITS AND NETWORKS

Analysis of TEM cells using the finite-difference technique and the conjugate gradient method. Ching-Chuan Su H p261
B.N. Das:P.V.D. Somasekhar Rao:. H p265
Method of optimum oscillator design using power-dependent *S*-parameters. H. Umeda G p533

MICROWAVE COMMUNICATIONS

Cross-correlation between 900 MHz signals received on vertically separated antennas in small-cell mobile radio systems. M.T. Feeney and J.D. Parsons I p81
Mathematical analysis of the three-ray dispersive fading channel model. H. Goldman I p87

MICROWAVE HEATING

Thermal simulation of transients in microwave devices. P.W. Webb and I.A.D. Russell G p329

MICROWAVE INTEGRATED CIRCUITS

AC resistance of two coupled strip conductors. R. Faraji-Dana and Y.L. Chow H p37

MICROWAVE MEASUREMENTS

A study of tropospheric scintillations using SODAR. D. Narayana Rao, K. Krishna Reddy, K.S. Ravi, S.V.B. Rao, M.J. Kesava Murthy, H.N. Dutta, S.K. Sarkar and B.M. Reddy H p313
Flip chip-bonded GaAs MMICs compatible with foundry manufacture. D.J. Warner, K.L. Pickering, D.J. Pedder, B.J. Buck and S.J. Pike H p74
Microwave impedance measurements on resonant tunnelling diodes and network model parameter extraction. M.F.C. Schemmann, H.C. Heyker, J.J.M. Kwaspen and Th.G. van de Roer H p248
Microwave sensor for moisture measurements in solid materials. T. Lasri, B. Dujardin and Y. Leroy H p481

MICROWAVE PASSIVE COMPONENTS

Analysis of TEM cells using the finite-difference technique and the conjugate gradient method. Ching-Chuan Su H p261
Experimental characterisation of a reciprocal microstrip 3-port junction. J. Helszajn and C. Bradley H p91

MICROWAVE SYSTEMS

Design of phase velocity tapers in coupled-cavity TWTs. V. Srivastava and R.G. Carter H p469
Model for microwave mode-locking of a laser diode by current modulation. J. Chesnoy J p47

MICROWAVE TUBES

Backward-wave suppression in a very wide-band helix travelling-wave tube using a slow waveguide filter. A.J. Sangster, A. Swan and E.P. Livingston H p79

MILLIMETRE WAVE DEVICES AND COMPONENTS

Design of millimetre wave grooved targets. N.J. Cronin, N. Athamena and D. Tinkler **F** p576
Optical control of wave propagation in microstrip-slot lines at D band. M. Tsutsumi, H. Shimasaki and G.B. Morgan **H** p527
Proposed method for measurement of absorption loss and beam efficiency of large mm-wave reflector antennas in compact antenna test range by using hot and cold loads. A. Lehto, J. Tuovinen and A. Räisänen **H** p13

MODULATION

Analysis and simulation of a hybrid modulation scheme for embedding data in amplitude-modulated signals. G.B. Lockhart and Y.O. Al-Jalili **I** p426
Bandwidth efficient QAM schemes for Rayleigh fading channels. W.T. Webb, L. Hanzo and R. Steele **I** p169
Differential detection of correlative encoded continuous phase modulation schemes using decision feedback. D. Makrakis and P.T. Mathiopoulos **I** p473
GaAs/GaAlAs graded index separate confinement single quantum well single-mode waveguide electroabsorption light modulator. L.D. Zhu, F.K. Xiong, C.M. Wang, Z.H. Chen, Y.L. Hsie, G.A.B. Feak and J.M. Ballantyne **J** p313
Harmonic and intermodulation performance of analogue CMOS circuits owing to mobility reduction. M.T. Abuelma'atti **G** p65
Minimisation of ununcharacteristic harmonics in HVDC convertors through firing angle modulation. V.K. Sood and A.M. Gole **C** p567
Modulation of picosecond pulses using semiconductor laser amplifiers. A.M. Lomax and I.H. White **J** p178
Prediction of RFI demodulation in BiFET, BiMOS and CMOS operational amplifiers. M.T. Abuelma'atti **G** p56
Reduced state sequence detection of partial response continuous phase modulation. A. Svensson **I** p256
Study of adjacent and co-channel FM interference reduction. H.W. Hawkes **I** p319
Theory of self-locking FM operation in semiconductor lasers. K.A. Shore and W.M. Yee **J** p91
Vector modulation of split-contact DFB lasers. W.B. Hale, H. Sundaresan, I.D. Henning and J. Mellis **J** p109

MOTORS

Computer simulation of three-phase prestriking transients in cable-connected motor systems. K.J. Cornick and A.N.D. Tleis **B** p105
Critical torque and speed of eddy current brake with widely separated soft iron poles. J.H. Wouterse **B** p153
Current commands for high-efficiency torque control of DC shunt motor. S. Funabiki and T. Fukushima **B** p227
Role and objectives of control for wind turbines. W.E. Leithead, S. de la Salle and D. Reardon **C** p135
Slot discharge damage in air cooled stator windings. A. Wilson **A** p153
V curve of hysteresis motor. T. Ishikawa and T. Kataoka **B** p137
Vibration characteristics of motors with dynamic absorbers. A. Tozune **B** p21

MULTIVARIABLE CONTROL SYSTEMS

Application of generalised predictive control to a boiler-turbine unit for electricity generation. J.A. Rossiter, B. Kouvaritakis and R.M. Dunnett **D** p59
Multivariable decoupling pole assignment self-tuning feedforward controller. Z.-L. Deng and X.-R. Huang **D** p85
Rule based identifier for unknown systems. H. Wang and A.H. Jones **D** p500

NETWORKS

A systematic method for obtaining state equations using MNA. S. Natarajan **G** p341
Analysis of asynchronous multiplexers for periodic traffic in integrated broadband networks. M.E. Anagnostou and P.D. Sparaggis **I** p481
Analytic models for performance evaluation of single-buffered banyan networks under nonuniform traffic. T.-H. Lee **E** p41
Bound on inputs to neurons of Hopfield continuous-variable neural network. Luo Fa-Long and Yang Jun **G** p671
Distributed artificial intelligence approach to air traffic control. N.V. Findler and R. Lo **D** p515
Hebbian plasticity in MOS synapses. H.C. Card, C.R. Schneider and W.R Moore **F** p13
Minimum dimensional state-space formulation of linear systems. S. Atadan **G** p590
Multiple bus network with overlapping connectivity. B. Wilkinson **E** p281
Neural network architectures for content-addressable memory. L. Tarassenko, J.N. Tombs and J.H. Reynolds **F** p33
Neural networks for nonlinear internal model control. K.J. Hunt and D. Sbarbaro **D** p431
Nonlinear distortion of an FM signal by a passive network. M.T. Abuelma'atti **G** p61
On nonuniform packet switched delta networks and the hot-spot effect. P.G. Harrison **E** p123
Optimal design parameters in capacity assignment for a broadband network. Chung-Ju Chang and Yann-Ju Chu **I** p387
Public telex-to-facsimile network interworking facility. D.D. Ó Séaghdha and P.C. Fannin **I** p327
Robust algorithm for state estimation in electrical networks. M.M. Smith, R.S. Powell, M.R. Irving and M.J.H. Sterling **C** p283
Silicon implementations of neural networks. A.F. Murray **F** p3
Simulation of PM2I network by folded hypercube. S. Latifi **E** p397
Single shunt fault diagnosis in ladder structures with a new series of numbers. S.K. Dana and D. Patranabis **G** p38
Single-layer lookup perceptrons. G.D. Tattersall, S. Foster and R.D. Johnston **F** p46
Solving the interconnection problem with a linked assembly of neural networks. A.D.P. Green and P.D. Noakes **F** p63
Time series prediction by adaptive networks: a dynamical systems perspective. D. Lowe and A.R. Webb **F** p17

NOISE AND INTERFERENCE

A study of tropospheric scintillations using SODAR. D. Narayana Rao, K. Krishna Reddy, K.S. Ravi, S.V.B. Rao, M.J. Kesava Murthy, H.N. Dutta, S.K. Sarkar and B.M. Reddy **H** p313
Application of multiple path sequential decoding for intersymbol interference reduction problem. D. Haccoun and S. Kallel **I** p21
Broadband adaptive beamforming based on coherent signal subspace using spatial interpolation preprocessing. Yuan-Hwang Chen and Feng-Peng Yu **F** p489
CFAR detection of fluctuating targets in spatially correlated K-distributed clutter. B.C. Armstrong and H.D. Griffiths **F** p139
Canadian East Coast radar trials and the *K*-distribution. T.J. Nohara and S. Haykin **F** p80
Carrier recovery and filtering in optical BPSK heterodyne systems disturbed by phase noise from external cavity semiconductor lasers. J.J.O. Pires and J.R. Ferreira da Rocha **J** p284
DOA estimation with unknown noise fields: a matrix decomposition method. R. Rajagopal and P Ramakrishna Rao **F** p495
Design centring for yield and noise figure improvement of GaAs MESFETs. S.B. Lee and K.H. Tchah **G** p467
Design of partial response data transmission filters with specified stopband attenuation. D.-Y. Yu, S.-Q. Wu and L.-M. Li **G** p347
Detection of partial response signals using noise prediction techniques. D. Makrakis, A. Yongaçoğlu and K. Feher **I** p133
Effectiveness of multinotch logic-product polarisation filters in radar for countering rain clutter. A.J. Poelman and C.J. Hilgers **F** p427
Electromagnetic interference of a plane wave incident on superstrate-loaded microstrip circuits. K.-L. Wong **H** p455
Empirical comparison of methods of fuzzy relational identification. B. Postlethwaite **D** p199
Extended definitions for noise temperatures of linear noisy one- and two-ports. J. Engberg and T. Larsen **H** p86
Gross spatial structure of land clutter. S.P. Tonkin and R.A. McCulloch **F** p99
Interference effect on the performance of PSK and QAM systems. J.C. Brandão **I** p331
K-distributed coherent sea clutter. C.J. Baker **F** p89
Low-frequency noise in GaAs MESFETs related to backgating effects. A.N. Birbas, B. Brunn, A.D. van Rheenen, A. Gopinath, C.L. Chen and F. Smith **G** p175
Memory controlled feedforward lineariser suitable for MMIC implementation. S. Kumar and G. Wells **H** p9
Millimetre-wave backscatter from desert terrain. L.D. Williams, R.P. Kirby, M.A. Summerfield, D.J. Rust, S. Astbury and P.A. Lee **F** p93
Modelling and simulation of non-Rayleigh radar clutter. E. Conte, M. Longo and M. Lops **F** p121
Multipath effects on low-angle tracking at millimetre-wave frequencies. J.A. Bruder and J.A. Saffold **F** p172
Multiplicative noise model and composite signal detection. I. Song and T.S. Uhm **F** p531
New measures for assessing the inductive influence of multiconductor transmission lines. G.R. Cameron and P.S. Bodger **C** p358
Noise analysis for digit slicing FFT. Z.A.M. Sharrif, M. Othman and T.S. Theong **F** p509
Noise measure for optimum broadband design. H. Javan **G** p1
Parabolic equation modelling of the effects of multipath and ducting on radar systems. K.H. Craig and M.F. Levy **F** p153
Performance analysis of mobile packet radio networks in real channels with inhibit-sense multiple access. R. Prasad **I** p458
Performance of an asynchronous hybrid spread spectrum system in the presence of interference, Rician fading and AWGN. L. Sadiq and A.H. Aghvami **I** p117
Performance of novel low intermediate frequency coherent optical DPSK receiver using baseband detection. B. Jensen, G. Jacobsen, E. Bødtker, B. Christensen and T. Skettrup **J** p401
Performance of transfer resistance amplifiers with capacitive sources in optical applications. D.K. Hamilton **G** p45
Polarisation behaviour of ground clutter during dwell time. D. Giuli, M. Fossi and M. Gherardelli **F** p211
Radar clutter and multipath propagation. S. Watts **G** p73
Statistical properties of multifrequency high-range-resolution sea reflections. T. Hair, T. Lee and C.J. Baker **F** p75
Steady-state superiority of LMS over LS for time-varying line enhancer in noisy environment. O. Macchi, N. Bershad and M. Mboup **F** p354
Study of adjacent and co-channel FM interference reduction. H.W. Hawkes **I** p319
Time-domain convolution of one-bit coded radar signals. G. Alberti, G. Franceschetti, V. Pascazio and G. Schirinzi **F** p438
Use of inductive compensation for improving bandwidth and noise performance of high frequency optical receiver preamplifiers. D.K. Hamilton **G** p52

NONDESTRUCTIVE TESTING

Electromagnetic surface impedance of an anisotropic cylinder. J.R. Wait **A** p184
Geometrical testing of three-dimensional objects with the aid of pattern recognition. J.P. Cosmas and R. Hibberd **E** p250
Neural networks for the classification of nondestructive evaluation signals. L. Udpa and S.S. Udpa **F** p41

NONLINEAR OPTICS

New method of designing adaptive nonlinear filters. K. Deergha Rao and D.C. Reddy **F** p513
Volterra series analysis of distortion in semiconductor laser diodes. H.M. Salgado and J.J. O'Reilly **J** p379

NONLINEAR SYSTEMS

Adaptive general predictive controller for nonlinear systems. Q.M. Zhu, K. Warwick and J.L. Douce **D** p33
Chaos prediction in nonlinear feedback systems. R. Genesio and A. Tesi **D** p313
Controller design of multivariable variable structure systems with nonlinear switching surfaces. D.S. Lee, M.G. Kim, H.K. Kim and M.J. Youn **D** p493
Feedback stabilisation of synchronous generator by extended linearisation. P. Woźniak and K. Kuźmiński **D** p363
Ferroresonance in power systems: Fundamental solutions. J.R. Marti and A.C. Soudack **C** p321
Model reference control of nonlinear plants with uncertain and unbounded terms. Y. Stepanenko and J. Yuan **D** p535
New nonlinear large-signal DC bipolar junction transistor model. J. Rodriguez-Tellez **G** p145
Nonlinear TE waves in asymmetric dielectric hollow waveguides with a self-focusing Kerr-like nonlinear film. S. Okafuji and Y. Nakai **J** p204

Observations-weighted optimal control of a class of nonlinear systems. M.J. Grimble and S.A. Carr D p160
Quasilinear approach to nonlinear systems and the design of n-double scroll ($n = 1, 2, 3, 4, \ldots$). J. Suykens and J. Vandewalle G p595
SPICE simulation of nonlinear equations and circuits. Y.S. Lee, M.H.L. Chow and J.S.L. Wong G p273
Self-adaptive design of a nonlinear temperature control system. A. Chotai, P.C. Young and M.A. Behzadi D p41

NUMERICAL ANALYSIS

Accurate numerical analysis of polarisation-preserving optical fibre with three-layer elliptical cross-section. T. Miyamoto J p1
Discrete complex images of a three-dimensional dipole above and within a lossy ground. J.J. Yang, Y.L. Chow and D.G. Fang H p319
Discrete logarithm hash function that is collision free and one way. J.K. Gibson E p407
Finite element method for electromagnetic scattering in a lossy medium. F. Farail, A. Roger and M. Bouthinon H p201
Full wave analysis of arbitrarily shaped line-fed microstrip antennas using triangular finite-element method. K.-L. Wu, J. Litva, R. Fralich and C. Wu H p421
Iterative calculation of ship-borne HF antenna performance. P.J. Baldwin, A.G.P. Boswell, D.C. Brewster and J.S. Allwright H p151
Marching-on-in-frequency method for solving integral equations in transient electromagnetic scattering. A.G. Tijhuis and Z.Q. Peng H p347
Matrix interpretation of the spectral iteration technique for 3D dielectric scatterers in the resonance region. A. McCowen and T.V. Tran H p219
Numerical analysis of the characteristics of TE-modes of waveguides loaded with inhomogeneous dielectrics. J.-G. Ma H p109
Numerical modelling technique for the radiation of wire antennas near conducting surfaces. M.A. Hassan H p225
Numerical solution to three-dimensional inverse scattering for dielectric reconstruction purposes. S. Caorsi, G.L. Gragnani and M. Pastorino H p497
Propagation in the presence of two coupled parallel gyroelectric cylinders. C.N. Capsalis, P.G. Cottis and T.C. Vaidis J p199
Two-dimensional analysis of optical waveguides with a nonuniform finite difference method. S. Seki, T. Yamanaka and K. Yokoyama J p123
Use of common factors in numerical synthesis of RLC one ports. B. Shahzadi G p427

OPTICAL AMPLIFIERS

Accurate assessment of sensitivity and optimum threshold for semiconductor laser preamplified optical receivers. R.S. Fyath and J.J. O'Reilly J p221

OPTICAL MATERIALS

Linear and nonlinear optical properties of direct gap Si–Ge superlattices. R.J. Turton and M. Jaros J p323

OPTICAL WAVEGUIDES

Buried ridge stripe 1.5 μm GaInAsP/InP laser-waveguide integration by a simplified process. D. Remiens, V. Hornung, B. Rose and D. Robein J p57
Finite-cladding fibres: HE_{12} and local-normal-mode coupling evolution. R.J. Black, J. Bures and J. Lapierre J p330
Finite-element method using Hermitian line elements for planar diffused optical waveguides. H. Kumagami and M. Koshiba J p218
Frequency response of silicon-clad planar diffused optical waveguides. H. Kumagami and M. Koshiba J p249
GaAs/AlGaAs quantum well laser for high-speed applications. H. Lang, H.D. Wolf, L. Korte, H. Hedrich, C. Hoyler and C. Thanner J p117
Polarisation dependence of refractive index of MQW waveguides. S.I. Hansen, J.H. Marsh and J.S. Roberts J p309
Propagation in the presence of two coupled parallel gyroelectric cylinders. C.N. Capsalis, P.G. Cottis and T.C. Vaidis J p199
Propagation phenomena of nonlinear guided waves in graded-index planar waveguides. D. Mihalache and D. Mazilu J p365
Rayleigh quotient solution of semivectorial field problems for optical waveguides with arbitrary index profiles. M.S. Stern J p185
Single mode square- and rectangular-core waveguides. F. Ladouceur, J.D. Love and I.M. Skinner J p253
Transmission characteristics of fibre gratings. J. Buus, D.J. Robbins, C.M. Ragdale and D.C.J. Reid J p155
Two-dimensional analysis of optical waveguides with a nonuniform finite difference method. S. Seki, T. Yamanaka and K. Yokoyama J p123

OPTICS

Absorptive bistability in inhomogeneously pumped quantum well laser diodes. I. Middlemast, J. Sarma, K.A. Shore, A.I. Kucharska, E.D. Fletcher and P. Blood J p301
Accurate numerical analysis of polarisation-preserving optical fibre with three-layer elliptical cross-section. T. Miyamoto J p1
Bent slab ray theory for power distribution in core and cladding of bent multimode optical fibres. A.H. Badar, T.S.M. Maclean, H. Ghafouri-Siraz and B.K. Gazey J p7
Buried ridge stripe 1.5 μm GaInAsP/InP laser-waveguide integration by a simplified process. D. Remiens, V. Hornung, B. Rose and D. Robein J p57
Cost 217 intercomparison and analysis of fibre mode field diameter measurements. COST 217 Group J p373
Design and fabrication of packaged InP/InGaAsP multiple quantum well waveguide components with very low insertion loss. T.G. Lynch, M.D.A. MacBean, R.H. Walling and A.R. Thurlow J p319
Experimental assessment of phase retrieval holography of radiotelescope. D. Morris, J.H. Davis and C.E. Mayer H p243
Finite-cladding fibres: HE_{12} and local-normal-mode coupling evolution. R.J. Black, J. Bures and J. Lapierre J p330
Frequency response of silicon-clad planar diffused optical waveguides. H. Kumagami and M. Koshiba J p249
Heterodyne processing scheme for low coherence interferometric sensor systems. B.T. Meggitt, W.J.O. Boyle, K.T.V. Grattan, A.E. Baruch and A.W. Palmer J p393
Influence of nonlinear gain on intrinsic bandwidth of quantum well and strained layer semiconductor lasers. Y.C.A. Wong and K.A. Shore J p413
Multichannel grating cavity (MGC) laser transmitter for wavelength division multiplexing applications. K.O. Nyairo, I.H. White, P.A. Kirkby and C.J. Armistead J p337
Multilevel data communication over optical fibre. J.K. Pollard I p162
New evanescent field approximation for weakly-guiding fibres. G.-D. Peng and A. Ankiewicz J p33
Nonlinear TE waves in asymmetric dielectric hollow waveguides with a self-focusing Kerr-like nonlinear film. S. Okafuji and Y. Nakai J p204
Optical circuits and integrated detectors. M. Erman, Ph. Riglet, Ph. Jarry, B.G. Martin, M. Renaud, J.F. Vinchant and J.A. Cavaillès J p101
Optical pulse response of a fibre ring resonator. G.S. Pandian and F.E. Seraji J p235
Performance analysis of the delay and exclusive-OR type clock recovery circuit in an APD-based optical receiver. D. Datta and R. Gangopadhyay J p21
Performance evaluation of coherent subcarrier multiplexed optical distribution systems with common local oscillators. M.-S. Kao and J. Wu J p269
Propagation in cylindrical guides with gyroelectric core and cladding. P.G. Cottis J p383
Rayleigh quotient solution of semivectorial field problems for optical waveguides with arbitrary index profiles. M.S. Stern J p185
Semiconductor Raman laser with resonator film transparent to pump light. K. Suto, T. Kimura and J. Nishizawa J p396
Simultaneous self-starting additive pulse mode-locking and second harmonic generation of an Nd: YAG laser using self-organised germanosilicate optical fibres. J.P. Bernardin and N.M. Lawandy J p281
Spectral analysis of diode lasers by measurement of polarisation rotation in a birefringent fibre. A.S. Davison and I.H. White J p148
Tapered single-mode fibres and devices. Part 1: Adiabaticity criteria. J.D. Love, W.M. Henry, W.J. Stewart, R.J. Black, S. Lacroix and F. Gonthier J p343
Tapered single-mode fibres and devices. Part 2: Experimental and theoretical quantification. R.J. Black, S. Lacroix, F. Gonthier and J.D. Love J p355
Towards optimum multilayer filter design. T.C. Chen J p241
Transition and pure bending losses in multimode and single-mode bent optical fibres. A.H. Badar and T.S.M. Maclean J p261
Transmission characteristics of fibre gratings. J. Buus, D.J. Robbins, C.M. Ragdale and D.C.J. Reid J p155
Wavelength tunable DFB and DBR lasers for coherent optical fibre communications. Y. Kotaki and H. Ishikawa J p171

OPTIMAL CONTROL

Application of stochastic optimal control to thin rib machining. M. Anjanappa, D.K. Anand and J.A. Kirk D p228
Discrete-time optimal control for linear time-delay systems with deterministic disturbances. T.-T. Lee and C.-L. Shih D p573
Eigenstructure assignment in high-gain feedback systems. S. Sen and K.B. Datta D p165
Observations-weighted optimal control of a class of nonlinear systems. M.J. Grimble and S.A. Carr D p160
Optimal model-following control of a positioning drive system with a permanent-magnet synchronous motor. P.M. Pelczewski, W. Oberschelp and U.H. Kunz D p267
Optimal tracking with previewed commands. M.E. Halpern D p237

OPTIMISATION

Design centring for yield and noise figure improvement of GaAs MESFETs. S.B. Lee and K.H. Tchah G p467
Design of digital differentiators satisfying prescribed specifications using optimisation techniques. S. Sunder, W.-S. Lu, A. Antoniou and Y. Su G p315
Efficient techniques in the sizing and constrained optimisation of CMOS combinational logic circuits. J.-S. Hwang and C.-Y. Wu E p154
Learning systems: Theory and application. K. Najim and G. Oppenheim E p183
Modified loss coefficients in the determination of optimum generation scheduling. D. Hazarika and P.K. Bordoloi C p166
Optimal controller with prescribed dominant energy eigenvalues. C.M. Liaw D p405
Optimal-efficiency excitation of variable-reluctance motor drives. D.A. Torrey and J.H. Lang B p1

OPTOELECTRONICS

32×32 two-dimensional array of vertical to surface transmission electrophotonic devices with a *pnpn* structure. K. Kurihara, Y. Tashiro, I. Ogura, M. Sugimoto and K. Kasahara J p161
An active beam-scanning optoelectronic logic gate. H. Itoh, S. Mukai, M. Watanabe, M. Mori and H. Yajima J p113
Electro-optic interferometers in wideband subcarrier-multiplexed optical communication. T. Chattopadhyay J p60
Emission spectral width broadening for InGaAsP/InP superluminescent diodes. O. Mikami, Y. Noguchi, H. Yasaka, K. Magari and S. Kondo J p133
Giga-bit rate receiver OEICs grown by OMVPE for long-wavelength optical communications. H. Hayashi, H. Yano, K. Aga, H. Kamei and G. Sasaki J p164
High reliability photodetector with integral bandpass filter for receivers in passive optical networks. C.P. Skrimshire, M.D. Learmouth, N.P. Hewett and I. Reid J p191
Impurity induced disordering in InGaAs/InGaAlAs quantum wells using implanted fluorine and boron. A.C. Bryce, J.H. Marsh, R. Gwilliam and R.W. Glew J p87
Laser-induced transient photoconductivity in MQW systems. B.K. Ridley and P.J. Bishop J p294
Linear and nonlinear optical properties of direct gap Si–Ge superlattices. R.J. Turton and M. Jaros J p323
Optical control of wave propagation in microstrip-slot lines at D band. M. Tsutsumi, H. Shimasaki and G.B. Morgan H p527
Optical interconnections and optical digital computing based on the photonic parallel memory (PPM). K. Matsuda and J. Shibata J p67
Performance of novel low intermediate frequency coherent optical DPSK receiver using baseband detection. B. Jensen, G. Jacobsen, E. Bødtker, B. Christensen and T. Skettrup J p401
Rayleigh quotient solution of semivectorial field problems for optical waveguides with arbitrary index profiles. M.S. Stern J p185

PERTURBATION THEORY

Identification of coherent generators for power system dynamic equivalents using unstable equilibrium point. M.H. Haque C p546
Stochastic model for power system planning studies. C.O. Nwankpa and S.M. Shahidehpour C p307

PHASING AND PHASE CONTROL

Balanced operation of three-phase induction motor with asymmetrical stator windings connected to single-phase supply system. A. Tozune B p167

Design of a fractional phase locked-loop frequency synthesiser using a Motorola based microcontroller. M.E. Rizkalla, H. Gundrum and H. Michel **A** p295
Experimental assessment of phase retrieval holography of radiotelescope. D. Morris, J.H. Davis and C.E. Mayer **H** p243
Symmetric-pair antennas for beam steering, direction finding or isotropic-reception gain. R. Benjamin, W. Titze, P.V. Brennan and H.D. Griffiths **H** p368

PHOTODETECTORS

High reliability photodetector with integral bandpass filter for receivers in passive optical networks. C.P. Skrimshire, M.D. Learmouth, N.P. Hewett and I. Reid **J** p191

PHYSICAL PROPERTIES

Electro-rheological valves in a hydraulic circuit. A.J. Simmonds **D** p400

PICTURE PROCESSING AND PATTERN RECOGNITION

Application of pattern recognition techniques for online security-economy and reactive control of power systems. C.S. Chang **C** p1
Design of artificial neural networks for short-term load forecasting. Part I: Self-organising feature maps for day type identification. Y.-Y. Hsu and C.-C. Yang **C** p407
Design of artificial neural networks for short-term load forecasting. Part II: Multilayer feedforward networks for peak load and valley load forecasting. Y.-Y. Hsu and C.-C. Yang **C** p414
Dimension of the speech space. M.D. Alder, R. Togneri and Y. Attikiouzel **I** p207
Geometrical testing of three-dimensional objects with the aid of pattern recognition. J.P. Cosmas and R. Hibberd **E** p250
Heuristic search approach to shape matching in image sequences. S. Chaudhury, S. Subramanian and G. Parthasarathy **E** p97
Multipeak histogram analysis in region splitting: a regularisation problem. S. Pal and P. Bhattacharyya **E** p285
New parallel Hough transform for circles. R. Chan and W.C. Siu **E** p335
Spatial-spectral clustering using recursive spanning trees. K.S. Lau and G. Wade **I** p232

POLES AND ZEROS

Analysis and detection algorithms for complex time zeros of bandlimited signals. Y.O. Al-Jalili **I** p189
Hybrid state-space self-tuning control using dual-rate sampling. L.S. Shieh, X.M. Zhao and J.W. Sunkel **D** p50
Identification for long-range predictive control. D.S. Shook, C. Mohtadi and S.L. Shah **D** p75
Maximally-flat rational approximation with multiple critical pole-pair. M. Biey, S. Coco and A. Premoli **G** p244
Multivariable decoupling pole assignment self-tuning feedforward controller. Z.-L. Deng and X.-R. Huang **D** p85
Sequential design of multivariable control systems. J. Van de Vegte **D** p103
Tracking periodic inputs using sampled compensators. G.F. Ledwich and A.G. Bolton **D** p242

POWER ELECTRONICS

Bilateral series resonant inverter for high frequency link UPS. Y.H. Chung, B.S. Shin and G.H. Cho **B** p159
Class D voltage-switching MOSFET power amplifier. M.K. Kazimierczuk **B** p285
Decomposition of voltage, current and power. S.Q. Sun and H. Kiyokawa **B** p35
Electrical characteristics of alternative recovery convertors for slip-energy recovery drives. B.A.T. Al Zahawi, B.L. Jones and W. Drury **B** p193
Fast-decoupled rectangular co-ordinate state estimation with efficient data structure management. I.O. Habiballah and V.H. Quintana **C** p462
Novel full bridge semicontrolled switch mode rectifier. S. Manias **B** p252
Parallel-mode extended-period quasiresonant convertor. K.W.E. Cheng and P.D. Evans **B** p243
Partitioning of power networks and applications to security control. V.H. Quintana and N. Müller **C** p535
Recursive approach to optimal control problem of multiarea electric energy system. J.A. Momoh and X. Shen **D** p543
Simple approach to calculation of power system transients using the Z-transform. Y.P.J.M. Ponsioen **C** p297
Single-phase sinusoidal rectifier with step-up/down characteristics. R. Itoh and K. Ishizaka **B** p338
Temperature effects on high power low on-resistance MOS-bipolar transistor module. K.V.O. Rabah **G** p510
Three-phase flyback AC-DC convertor with sinusoidal supply currents. R. Itoh and K. Ishizaka **B** p143

POWER SYSTEM PROTECTION

Feedback stabilisation of synchronous generator by extended linearisation. P. Woźniak and K. Kuźmiński **D** p363
New method for monitoring and protection of high voltage switchyards. D.W.E. Blatt **C** p228
Stability of loadflow techniques for distribution system voltage stability analysis. G.B. Jasmon and L.H.C.C. Lee **C** p479
ZnO surge arrester elements with mixed direct and 50 Hz voltages. A. Haddad, H.S.B. Elayyan and D.M. German **A** p265

POWER SYSTEMS AND PLANT

33rd Hunter Memorial Lecture: The challenge to UK power engineers. R. Hawley **C** p173
Application of power system stabilisers in a plant with identical units. C.S. de Araújo and J.C. de Castro **C** p11
Consideration of skin effect in high-voltage coaxial systems under transient and steady-state conditions, and its impact on steep travelling waves. I.R. Jandrell and J.P. Reynders **C** p445
Decentralised proportional-plus-integral design method for interconnected power systems. M. Aldeen and J.F. Marsh **C** p263
Decomposition approach for minimising real power losses in power systems. N.I. Deeb and S.M. Shahidehpour **C** p27
Decomposition of Czarnecki's reactive current and reactive power. S.Q. Sun and C.G. Jiang **B** p125
Decomposition of voltage, current and power. S.Q. Sun and H. Kiyokawa **B** p35
Design of artificial neural networks for short-term load forecasting. Part I: Self-organising feature maps for day type identification. Y.-Y. Hsu and C.-C. Yang **C** p407
Design of artificial neural networks for short-term load forecasting. Part II: Multilayer feedforward networks for peak load and valley load forecasting. Y.-Y. Hsu and C.-C. Yang **C** p414
Effects of abnormal operating conditions on electrical utility planning. G.I. Dodds and W.C. Beattie **C** p113
Efficient method for calculating power system production cost and reliability. E.G. Preston and W.M. Grady **C** p221
Fast transient stability assessment using large step-size numerical integration. Y. Dong and H.R. Pota **C** p377
Identification of coherent generators for power system dynamic equivalents using unstable equilibrium point. M.H. Haque **C** p546
Integrating an expert system into a thermal unit-commitment algorithm. Md-Sayeed Salam, Abdul-Razak Hamdan and Khalid Mohamed Nor **C** p553
Model reference adaptive control for large scale systems with application to power systems. H. Yousef and M. Simaan **D** p321
Modelling of large nonlinear loads and thyristor controlled shunt compensators. C.K.K. Tang and D.R. Turner **C** p505
Modified loss coefficients in the determination of optimum generation scheduling. D. Hazarika and P.K. Bordoloi **C** p166
New algorithm for diakoptical static state estimation. S. Shahnawaz Ahmed and A. Brameller **C** p185
New findings of convergence properties of fast decoupled load flow algorithms. J. Nanda, V. Bapi Raju, P.R. Bijwe, M.L. Kothari and Bashir M. Joma **C** p218
Optimal switching of dynamic braking resistor, reactor or capacitor for transient stability of power systems. A.H.M.A. Rahim and A.I.J. Al-Sammak **C** p89
Optimum selection of speed regulation parameters for automatic generation control in discrete mode considering generation rate constraints. L. Hari, M.L. Kothari and J. Nanda **C** p401
Power generation scheduling through use of generalised network flow programming. R.E. Rice, W.M. Grady, W.G. Lesso, A.H. Noyola and M.E. Connolly **C** p39
Power system economic loading with flexible emergency reserve provision. K.M. Radi and B. Fox **C** p257
Power-component definitions and measurements for a harmonic-polluted power circuit. M.-T. Chen, H.-Y. Chu, C.-L. Huang and L.-W. Fei **C** p299
Ranking of line outages in an AC–DC system causing overload and voltage problems. P.R. Bijwe, J. Nanda and K.L. Puttabuddhi **C** p207
Recursive real-time calculation of basic waveforms of signals. K.-Fr. Eichhorn and T. Łobos **C** p469
Reliability assessment of hydrothermal generation systems containing pumped storage plant. R.N. Allan and J. Roman **C** p471
Small rating capacitive energy storage for dynamic performance improvement of automatic generation control. S.C. Tripathy, R. Balasubramanian and P.S. Chandramohanan Nair **C** p103
Solving data acquisition and processing problems in power systems using a pattern analysis approach. A.P. Alves de Silva, V.H. Quintana and G.K.H. Pang **C** p365
Stochastic model for power system planning studies. C.O. Nwankpa and S.M. Shahidehpour **C** p307
Value of variable sources on power systems. M.J. Grubb **C** p149

POWER TRANSMISSION AND DISTRIBUTION

Application of series-capacitor and shunt-reactor compensation to an existing practical AC transmission line. M. El-Marsafawy **C** p330
Effects of underexcitation limiters on operation of remote generating station. S.S. Choi, R. Larkin, M.T. Bastick and A.W. Ferres **C** p560
Heuristic multi-area unit commitment with economic dispatch. Z. Ouyang and S.M. Shahidehpour **C** p242
Minimisation of uncharacteristic harmonics in HVDC convertors through firing angle modulation. V.K. Sood and A.M. Gole **C** p567
New measures for assessing the inductive influence of multiconductor transmission lines. G.R. Cameron and P.S. Bodger **C** p358
Optimal design of electricity distribution networks. A.C. Marshall, T.B. Boffey, J.R. Green and H. Hague **C** p69
Transposition study and field measurements of long radial static-reactive power compensated transmission system. S.S. Choi and C.E. Carter **C** p337

POWER UTILISATION AND INDUSTRIAL APPLICATIONS

33rd Hunter Memorial Lecture: The challenge to UK power engineers. R. Hawley **C** p173
Modelling of large nonlinear loads and thyristor controlled shunt compensators. C.K.K. Tang and D.R. Turner **C** p505
Power system economic loading with flexible emergency reserve provision. K.M. Radi and B. Fox **C** p257
Thermal treatment of sewage sludge by ohmic heating. A.B. Murphy, K.J. Powell and R. Morrow **A** p242

PROCESS CONTROL

Artificial neural networks in process engineering. M.J. Willis, C. Di Massimo, G.A. Montague, M.T. Tham and A.J. Morris **D** p256
RESCU: a real-time knowledge based system for process control. R. Leitch, R. Kraft and R. Luntz **D** p217

PULSE-CODE MODULATION

Suboptimal real-time frequency/incident-angle estimator for multiple radar pulses. W.S. McCormick and J.B.Y. Tsui **F** p247

QUANTUM ELECTRONICS

Wave packet with special relativity demonstrating quantum rules, Schrödinger's equation and propagator integral. I.S. Reed **A** p223

RADAR AND RADIONAVIGATION

A Bayesian approach to high-resolution beamforming. J. Lasenby and W.J. Fitzgerald **F** p539
Adaptive airborne MTI with two-dimensional motion compensation. R. Klemm **F** p551
Bisector angle estimation in a nonsymmetric multipath radar scenario. M.D. Zoltowski and T.-S. Lee **F** p559

Broadband adaptive beamforming based on coherent signal subspace using spatial interpolation preprocessing. Yuan-Hwang Chen and Feng-Peng Yu F p489
CFAR detection of fluctuating targets in spatially correlated K-distributed clutter. B.C. Armstrong and H.D. Griffiths F p139
Canadian East Coast radar trials and the *K*-distribution. T.J. Nohara and S. Haykin F p80
Design of noise FM-CW radar and its implementation. Liu Guosui, Shi Xiangquan, Lu Jimhui, Yang Guoyu and Song Yaoliang F p420
Effectiveness of multinotch logic-product polarisation filters in radar for countering rain clutter. A.J. Poelman and C.J. Hilgers F p427
Gross spatial structure of land clutter. S.P. Tonkin and R.A. McCulloch F p99
High resolution RCS measurements of boats. T.T. Moon and P.J. Bawden F p218
Investigation of edge scattering by high-resolution polarisation diversity radar imaging. W.F. Herdeg, H. Wendel and U. Fuchs F p400
Isolation of the travelling wave contribution to the backscatter pattern of conducting cylinders. M.C. de Villiers and J.A.G. Malherbe H p417
K-distributed coherent sea clutter. C.J. Baker F p89
Millimetre-wave backscatter from desert terrain. L.D. Williams, R.P. Kirby, M.A. Summerfield, D.J. Rust, S. Astbury and P.A. Lee F p93
Modelling and simulation of non-Rayleigh radar clutter. E. Conte, M. Longo and M. Lops F p121
Multipath effects on low-angle tracking at millimetre-wave frequencies. J.A. Bruder and J.A. Saffold F p172
Multipolarisation FM-CW Doppler radar signal processing for nondistributed targets. R.J. Niemeijer, J.S. van Sinttruyen and L.P. Ligthart F p185
New method of constructing the projection matrix for array processing in single snapshot case. M. Zhang, W. Yang and L. Li F p407
New practical method for measurement error determination in radar systems under real traffic conditions. C. Feijoó, A. Asensio and F. Pérez F p525
Parabolic equation modelling of the effects of multipath and ducting on radar systems. K.H. Craig and M.F. Levy F p153
Performance analysis of a noncoherent monopulse processor in the presence of target glint and receiver imbalances. Y. Yoganandam and R. Jitendra Das F p445
Point-source location using a millimetre wave focal-plane array radar. A.R. Webb F p581
Polarimetric radar signatures of preciptation at S- and C-bands. V.N. Bringi, V. Chadrasekar, P. Meischner, J. Hubbert and Y. Golestan F p109
Polarisation behaviour of ground clutter during dwell time. D. Giuli, M. Fossi and M. Gherardelli F p211
Processing of signum coded SAR signal: theory and experiments. G. Franceschetti, V. Pascazio and G. Schirinzi F p192
RCS calculation of open cavities by complex ray expansion. Y.Z. Ruan and W.L. Feng F p397
Radar absorbers: better by design. K.C. Pitman, M.W. Lindley, D. Simkin and J.F. Cooper F p223
Radar clutter and multipath propagation. S. Watts G p73
Radar detection of signals with unknown parameters in K-distributed clutter. E. Conte, M. Longo, M. Lops and S.L. Ullo F p131
Ranging and positioning experiments for aircraft using Engineering Test Satellite V. K. Ito F p571
Scattering from an impedance cylinder embedded in a nonconcentric dielectric cylinder. R.P. Parrikar, A.A. Kishk and A.Z. Elsherbeni H p169
Statistical properties of multifrequency high-range-resolution sea reflections. T. Hair, T. Lee and C.J. Baker F p75
Target tracking algorithms for phased array radar. D.J. Wilkin, I. Harrison and M.S. Woolfson F p255
Time-domain convolution of one-bit coded radar signals. G. Alberti, G. Franceschetti, V. Pascazio and G. Schirinzi F p438
Tracking technique for manoeuvring target with correlated measurement noises and unknown parameters. J.-A. Guu and C.-H. Wei F p278
Ultra-wideband beamforming in sparse arrays. F. Anderson, W. Christensen, L. Fullerton and B. Kortegaard H p342
Use of a highly deterministic multipath signal model in low-angle tracking. T. Lo and J. Litva F p163
Use of difference channel information for detection in monopulse radars. B.C. Armstrong and H.D. Griffiths F p199
Waveform analysis for high-frequency FMICW radar. R.H. Khan and D.K. Mitchell F p411

RADIATION

Plane-polar near-field to far-field transformation with three kinds of Fourier-Bessel eigenvalue expansions. C. Cao, E. Van Lil, A. Van de Capelle and K. Van 't Klooster H p463
Theoretical and experimental study of feed network effects on the radiation pattern of series-fed microstrip antenna arrays. K.-L. Wu, M. Spenuk, J. Litva and D.-G. Fang H p238

RADIO-WAVE PROPAGATION (IONOSPHERIC)

Measurements of the direction of arrival of HF sky wave signals and single site location using a seven element wide aperture (294 m) interferometer array. E.M. Warrington and T.B. Jones H p121

RADIO-WAVE PROPAGATION (MICROWAVE)

Mathematical analysis of the three-ray dispersive fading channel model. H. Goldman I p87
Parabolic equation modelling of the effects of multipath and ducting on radar systems. K.H. Craig and M.F. Levy F p153
Polarimetric radar signatures of preciptation at S- and C-bands. V.N. Bringi, V. Chadrasekar, P. Meischner, J. Hubbert and Y. Golestan F p109
Review on radio propagation into and within buildings. D. Molkdar H p61

RADIO-WAVE PROPAGATION (MILLIMETRE WAVE)

Attenuation statistics at 20.6, 31.65 and 52.85 GHz derived from emission measurements by ground-based microwave radiometers. E. Fionda, M.J. Falls and E.R. Westwater H p46
Millimetre-wave backscatter from desert terrain. L.D. Williams, R.P. Kirby, M.A. Summerfield, D.J. Rust, S. Astbury and P.A. Lee F p93
Multipath effects on low-angle tracking at millimetre-wave frequencies. J.A. Bruder and J.A. Saffold F p172

RADIO-WAVE PROPAGATION (TERRAIN EFFECTS)

Millimetre-wave backscatter from desert terrain. L.D. Williams, R.P. Kirby, M.A. Summerfield, D.J. Rust, S. Astbury and P.A. Lee F p93
Path integral analysis of paralaxial radiowave propagation over a nonlevel plateau. D.E. Eliades H p521
Performance evaluation of a composite microscopic plus macroscopic diversity system. A.M.D. Turkmani I p15
Performance of direct-sequence spread-spectrum multiple-access systems in mobile radio. W.H. Lam and R. Steele I p1
Radio transmission at 1800 MHz into, and within, multistorey buildings. A.M.D. Turkmani and A.F. de Toledo I p577
Review on radio propagation into and within buildings. D. Molkdar H p61
Scattering by a perfectly conducting finite size vertical rectangular plate. J. Gong, N.D. Jayasundere, T.S.M. MacLean and Z. Wu H p137
Statistical model for UHF radio-wave signals within externally illuminated multistorey buildings. P.J. Barry and A.G. Williamson I p307

RADIO-WAVE PROPAGATION (TROPOSPHERIC)

A study of tropospheric scintillations using SODAR. D. Narayana Rao, K. Krishna Reddy, K.S. Ravi, S.V.B. Rao, M.J. Kesava Murthy, H.N. Dutta, S.K. Sarkar and B.M. Reddy H p313
Characterisation of mobile radio signals: base station crosscorrelation. A.M.D. Turkmani and J.D. Parsons I p557
Characterisation of mobile radio signals: model description. J.D. Parsons and A.M.D. Turkmani I p549
Mathematical analysis of the three-ray dispersive fading channel model. H. Goldman I p87
Measurement and modelling of wideband mobile radio channels at 900 MHz. A.M.D. Turkmani, D.A. Demery and J.D. Parsons I p447
Radio transmission at 1800 MHz into, and within, multistorey buildings. A.M.D. Turkmani and A.F. de Toledo I p577
Sounding techniques for wideband mobile radio channels: a review. J.D. Parsons, D.A. Demery and A.M.D. Turkmani I p437

RADIOCOMMUNICATION

AGC strategy for adaptive digital modems employing cyclic channel estimation in an HF frequency hopping scenario. L.P. Linde I p185
Bit error probabilities of CPM signals in the frequency-selective fading channels. C.W. Lee, Y.M. Chung and S.U. Lee I p465
Channel-estimation-based adaptive DFE for fading multipath radio channels. P.K. Shukla and L.F. Turner I p525
Characterisation of mobile radio signals: base station crosscorrelation. A.M.D. Turkmani and J.D. Parsons I p557
Characterisation of mobile radio signals: model description. J.D. Parsons and A.M.D. Turkmani I p549
Cross-correlation between 900 MHz signals received on vertically separated antennas in small-cell mobile radio systems. M.T. Feeney and J.D. Parsons I p81
Detection of partial response signals using noise prediction techniques. D. Makrakis, A. Yongaçoğlu and K. Feher I p133
Differential detection of correlative encoded continuous phase modulation schemes using decision feedback. D. Makrakis and P.T. Mathiopoulos I p473
Digital signal processing techniques applied to mobile radio channel sounding. P.C. Fannin, A. Molina, S.S. Swords and P.J. Cullen F p502
Equaliser techniques for QAM transmissions over dispersive mobile radio channels. W.T. Webb and R. Steele I p566
Estimation of unreliable packets in subband coding of speech. W.C. Wong, N. Seshadri and C.-E.W. Sundberg I p43
Generation and properties of synthetic aperture polar diagrams for use in DF systems. H.W. Hawkes F p229
Least sum of squared errors (LSSE) channel estimation. S.N. Crozier, D.D. Falconer and S.A. Mahmoud F p371
Measurement and modelling of wideband mobile radio channels at 900 MHz. A.M.D. Turkmani, D.A. Demery and J.D. Parsons I p447
Optimal design parameters in capacity assignment for a broadband network. Chung-Ju Chang and Yann-Ju Chu I p387
Performance analysis of mobile packet radio networks in real channels with inhibit-sense multiple access. R. Prasad I p458
Performance evaluation of a composite microscopic plus macroscopic diversity system. A.M.D. Turkmani I p15
Performance of direct-sequence spread-spectrum multiple-access systems in mobile radio. W.H. Lam and R. Steele I p1
Radio transmission at 1800 MHz into, and within, multistorey buildings. A.M.D. Turkmani and A.F. de Toledo I p577
Reduced state sequence detection of partial response continuous phase modulation. A. Svensson I p256
Signalling efficiency modelling and measurement of simplex block encoded MBC systems. P.S. Cannon and A.H. Dickson I p544
Sounding techniques for wideband mobile radio channels: a review. J.D. Parsons, D.A. Demery and A.M.D. Turkmani I p437
Statistical modelling and computer simulation of indoor radio channel. R. Ganesh and K. Pahlavan I p153
Synchronisation of random bit sequences: application to hitless switching. I. Frigyes I p401

RADOMES

Influence of supporting dielectric layers on the transmission properties of frequency selective surfaces. P. Callaghan, E.A. Parker and R.J. Langley H p448

RAILWAY ELECTRIFICATION AND TRANSPORTATION

Determination of rail internal impedance for electric railway traction system simulation. R.J. Hill and D.C. Carpenter B p311
Six-pulse three-phase rectifier bridge models for calculating closeup and remote short circuit transients cn DC supplied railways. J.C. Brown, J. Allan and B. Mellitt B p303
Unbalance and harmonic studies for the Channel Tunnel railway system. R. Barnes and K.T. Wong B p41

RECEIVERS

Accurate assessment of sensitivity and optimum threshold for semiconductor laser preamplified optical receivers. R.S. Fyath and J.J. O'Reilly J p221
Design of contiguous RF filterbanks with application in channelised receivers. I.C. Hunter F p289
Microwave and millimetre-wave receivers with integral antenna. C.J. Alder, C.R. Brewitt-Taylor, M. Dixon, R.D. Hodges, L.D. Irving and H.D. Rees H p253
Performance analysis of a noncoherent monopulse processor in the presence of

target glint and receiver imbalances. Y. Yoganandam and R. Jitendra Das F p445
Performance analysis of phase-locked loops in the frequency search mode of operation. P. Hasan G p418
Performance analysis of the delay and exclusive-OR type clock recovery circuit in an APD-based optical receiver. D. Datta and R. Gangopadhyay J p21
Performance of novel low intermediate frequency coherent optical DPSK receiver using baseband detection. B. Jensen, G. Jacobsen, E. Bødtker, B. Christensen and T. Skettrup J p401
Technique allowing rapid frequency sweeping in aided-acquisition phase-locked loops. P.V. Brennan G p205

RELIABILITY

Efficient method for calculating power system production cost and reliability. E.G. Preston and W.M. Grady C p221
Frequency and duration method for reliability evaluation of large-scale hydrothermal generating systems. A.M. Leite da Silva, A.C.G. Melo and S.H.F. Cunha C p94
Hybrid approach for reliability evaluation of composite generation and transmission systems using Monte–Carlo simulation and enumeration technique. R. Billinton and L. Wenyuan C p233
Incorporating high reliability into the design of microprocessor-based instrumentation. I.A. Henderson, J. McGhee, W. Szaniawski and P. Domaradzki A p105
Reliability assessment of hydrothermal generation systems containing pumped storage plant. R.N. Allan and J. Roman C p471

RELUCTANCE MOTORS

High-speed reluctance machines with mixed-pole windings. Z. Zuncheng and E. Spooner B p257
New data base for switched reluctance drive simulation. D.W.J. Pulle B p331
Optimal-efficiency excitation of variable-reluctance motor drives. D.A. Torrey and J.H. Lang B p1

REMOTE SENSING

New high-speed adaptive frame synchronisers incorporating postdetection processing techniques. L.-K. Shark, T.J. Terrell and R.J. Simpson I p269
Scattering by a buried conducting object of general shape at low frequencies. A. Helaly, A. Sebak and L. Shafai H p213
Spatial-spectral clustering using recursive spanning trees. K.S. Lau and G. Wade I p232

REVIEWS OF PROGRESS

Present state of the electrical units. B.P. Kibble A p187

SATELLITE LINKS AND SPACE COMMUNICATION

Attenuation statistics at 20.6, 31.65 and 52.85 GHz derived from emission measurements by ground-based microwave radiometers. E. Fionda, M.J. Falls and E.R. Westwater H p46
Flat-plate steerable antennas for satellite communications and broadcast reception. M.C.D. Maddocks and M.S. Smith H p159
Low cost phased array antenna for land-mobile satcom applications. P.V. Brennan H p131
New high-speed adaptive frame synchronisers incorporating postdetection processing techniques. L.-K. Shark, T.J. Terrell and R.J. Simpson I p269
Operation of HDLC ABM in harsh error environments: a robust extension. G. Fairhurst I p291
Performance of a carrier-recovery loop in a satellite modem. S.W. Cheung and A.P. Clark I p32
Ranging and positioning experiments for aircraft using Engineering Test Satellite V. K. Ito F p571
Simulation study of 8PSK and CE16PSK signals for satellite transmissions. S.W. Cheung I p299
Technique allowing rapid frequency sweeping in aided-acquisition phase-locked loops. P.V. Brennan G p205

SEMICONDUCTOR DEVICES AND MATERIALS

Amorphous Si/SiC phototransistors and avalanche photodiodes. C.Y. Chang, J.W. Hong and Y.K. Fang J p226
Characteristics of δ-doped FETs in GaAs. H.C. Nutt, K. Board and R. Smith G p633
Design centring for yield and noise figure improvement of GaAs MESFETs. S.B. Lee and K.H. Tchah G p467
Design of a multimesa Impatt diode array optimised for maximum heat dissipation. A. Strum and A. Bar-Lev G p198
Effect of recombination current on current gain of HBTs. B.R. Ryum and I.M. Abdel-Motaleb G p115
Evaluation of packaging strays in discrete semiconductor devices. J. Rodriguez-Tellez and A.K. Baloch G p501
Fabrication of PMOS transistors by dopant implantation into $TiSi_2$. K.J. Barlow G p587
Field impoverishment modes in a diode with an $Al_xGa_{1-x}As/GaAs$ heterojunction: a simulation analysis. C.F. Fernandes and H.A. Santos G p91
GaAs/GaAlAs graded index separate confinement single quantum well single-mode waveguide electroabsorption light modulator. L.D. Zhu, F.K. Xiong, C.M. Wang, Z.H. Chen, Y.L. Hsie, G.A.B. Feak and J.M. Ballantyne J p313
Harmonic and intermodulation performance of analogue CMOS circuits owing to mobility reduction. M.T. Abuelma'atti G p65
Impulse response signature of a DCEL ZnS:Mn,Cu powder display determined by crosscorrelation. D.A. Barr and S.J. Laverty G p160
InP-based photonic integrated circuits. T.L. Koch and U. Koren J p139
Latch-up DC triggering and holding characteristics of n-well, twin-tub and epitaxial CMOS technologies. P. Pavan, G. Spiazzi, E. Zanoni, M. Muschitiello and M. Cecchetti G p604
Method of optimum oscillator design using power-dependent S-parameters. H. Umeda G p533
Observation of multi-state negative differential conductivity in periodic delta-doped superlattice. W.-C. Liu, C.-Y. Sun and W.-S. Lour G p424
Optimisation threshold parameters of multiple quantum well infra-red photodetector. F. Serzhenko and V. Shadrin J p299
Performance evaluation of coherent subcarrier multiplexed optical distribution systems with common local oscillators. M.-S. Kao and J. Wu J p269
Physically-based method for measuring the threshold voltage of MOSFETs. Z.X. Yan and M.J. Deen G p351
Polarisation dependence of refractive index of MQW waveguides. S.I. Hansen, J.H. Marsh and J.S. Roberts J p309
Prediction of RFI demodulation in BiFET, BiMOS and CMOS operational amplifiers. M.T. Abuelma'atti G p56
Review of carrier injection in the silicon/silicon-dioxide system. J.J. Sanchez and T.A. DeMassa G p377
Triac model for computer aided analysis and design. G. Arsov G p430
Two-dimensional off-state modelling of high-voltage semiconductor devices with floating guard rings. D.J. Byrne, M.S. Towers and K. Board G p109
Two-dimensional simulation of thyristor transient states from conduction to forward blocking. Z. Lisik and M. Turowski G p575

SEMICONDUCTOR LASERS

Accurate assessment of sensitivity and optimum threshold for semiconductor laser preamplified optical receivers. R.S. Fyath and J.J. O'Reilly J p221
Analysis of direct-discrimination of FSK modulated optical signal using injection-locked DFB lasers. R. Hui, S. Benedetto and I. Montrosset J p276
Carrier recovery and filtering in optical BPSK heterodyne systems disturbed by phase noise from external cavity semiconductor lasers. J.J.O. Pires and J.R. Ferreira da Rocha J p284
Characteristics of photonic parallel memory in relation to fabrication process. T. Chino, K. Matsuda, H. Adachi and J. Shibata J p128
Evaluation of semiconductor optical parameters for laser diodes. M. Estéban and J. Arnaud J p79
Impurity induced disordering in InGaAs/InGaAlAs quantum wells using implanted fluorine and boron. A.C. Bryce, J.H. Marsh, R. Gwilliam and R.W. Glew J p87
Influence of nonlinear gain on intrinsic bandwidth of quantum well and strained layer semiconductor lasers. Y.C.A. Wong and K.A. Shore J p413
Integrated mode-locked laser design with a distributed-Bragg reflector. A.J. Lowery J p39
Modulation of picosecond pulses using semiconductor laser amplifiers. A.M. Lomax and I.H. White J p178
Semiconductor Raman laser with resonator film transparent to pump light. K. Suto, T. Kimura and J. Nishizawa J p396
Spectral output of 1.3 μm InGaAsP semiconductor diode lasers. F.H. Peters and D.T. Cassidy J p195
Theory of self-locking FM operation in semiconductor lasers. K.A. Shore and W.M. Yee J p91
Volterra series analysis of distortion in semiconductor laser diodes. H.M. Salgado and J.J. O'Reilly J p379

SERVOMOTORS

Design and implementation of microprocessor based sliding mode controller for brushless servomotor. J.P. Karunadasa and A.C. Renfrew B p345
Microprocessor based automatic sun tracker. A. Konar and A.K. Mandal A p237

SIGNAL PROCESSING

Adaptive signal parameter estimation and classification technique. A.N. Manikas and L.F. Turner F p267
Analysis and simulation of a hybrid modulation scheme for embedding data in amplitude-modulated signals. G.B. Lockhart and Y.O. Al-Jalili I p426
Bit error probabilities of CPM signals in the frequency-selective fading channels. C.W. Lee, Y.M. Chung and S.U. Lee I p465
Characteristics of photonic parallel memory in relation to fabrication process. T. Chino, K. Matsuda, H. Adachi and J. Shibata J p128
Combination of block-coded modulation and trellis-coded modulation. J.-M. Wu and S.-L. Su I p381
Common formalism for adaptive identification in signal processing and control. O. Macchi F p295
Design of efficient second and higher degree FIR digital differentiators for midband frequencies. M.R.R. Reddy, S.C. Dutta Roy and B. Kumar G p29
Design of noise FM-CW radar and its implementation. Liu Guosui, Shi Xiangquan, Lu Jimhui, Yang Guoyu and Song Yaoliang F p420
Digital signal processing techniques applied to mobile radio channel sounding. P.C. Fannin, A. Molina, S.S. Swords and P.J. Cullen F p502
Editorial: Promoting realism in neural network research. A.D.P. Green and C.F.N. Cowan F p1
Heterodyne processing scheme for low coherence interferometric sensor systems. B.T. Meggitt, W.J.O. Boyle, K.T.V. Grattan, A.E. Baruch and A.W. Palmer J p393
LMS adaptive algorithms for joint forward and decision feedback equalisation. D. Ernst F p520
Layered neural nets applied in the recognition of voiceless unaspirated stops. L-C. Liu, L-M. Lee, H-C. Wang and Y-C. Chang I p69
Least sum of squared errors (LSSE) channel estimation. S.N. Crozier, D.D. Falconer and S.A. Mahmoud F p371
Multipolarisation FM-CW Doppler radar signal processing for nondistributed targets. R.J. Niemeijer, J.S. van Sinttruyen and L.P. Ligthart F p185
Neural controller based on back-propagation algorithm. M. Saerens and A. Soquet F p55
Neural networks for the classification of nondestructive evaluation signals. L. Udpa and S.S. Udpa F p41
New high-speed adaptive frame synchronisers incorporating postdetection processing techniques. L.-K. Shark, T.J. Terrell and R.J. Simpson I p269
New lattice realisation of the predictive least-squares order selection criterion. A.K. Nandi and J.A. Chambers F p545
New method of constructing the projection matrix for array processing in single snapshot case. M. Zhang, W. Yang and L. Li F p407
Novel approach for implementing convolutions with small tables. A. Skavantzos E p255
Performance evaluation of a composite microscopic plus macroscopic diversity system. A.M.D. Turkmani I p15
Performance of direct-sequence spread-spectrum multiple-access systems in mobile radio. W.H. Lam and R. Steele I p1
Primitive operator digital filters. D.R. Bull and D.H. Horrocks G p401
Processing of signum coded SAR signal: theory and experiments. G. Francheschetti, V. Pascazio and G. Schirinzi F p192
Recursive SMLR deconvolution algorithm for Bernoulli–Gaussian signals. C.-Y. Chi and W.-T. Chen F p263
Resolution threshold for coherent sources using smoothed eigenstructure methods. L. Chang and C.-C. Yeh F p470
Single-layer lookup perceptrons. G.D. Tattersall, S. Foster and R.D. Johnston F p46

Stochastic learning automata and adaptive IIR filters. C.K.K. Tang and P. Mars F p331
Suboptimum bit synchronisers for high-speed bandlimited waveforms. A.M.S. Gameiro and J.R.F. da Rocha I p176

SIMULATION

Adaptive control of a single-link flexible manipulator with unknown load. T.-C. Yang, J.C.S. Yang and P. Kudva D p153
An improvement to the transmission line model of the folded dipole. A.R. Clark and A.P.C. Fourie H p577
Analysis of transient behaviour of power system circuits containing iron cored coils. S. Ray C p275
Analytic models for performance evaluation of single-buffered banyan networks under nonuniform traffic. T.-H. Lee E p41
Application of generalised predictive control to a boiler-turbine unit for electricity generation. J.A. Rossiter, B. Kouvaritakis and R.M. Dunnett D p59
Artificial neural networks in process engineering. M.J. Willis, C. Di Massimo, G.A. Montague, M.T. Tham and A.J. Morris D p256
Canonical design of integrated ladder filters. R.K. Henderson, Li Ping and J.I. Sewell G p222
Characterisation of proton-exchanged and annealed proton-exchanged planar waveguides in z-cut $LiNbO_3$. G.L. Yip and J. Nikolopoulos J p389
Comparison of four CMOS transconductors for fully integrated analogue filter applications. G. Wilson and P.K. Chan G p683
Competitive training: a connectionist approach to the discriminative training of hidden Markov models. S.J. Young I p61
Design of current source using 12-pulse phase-controlled rectifier. B.H. Kwon and E.H. Song B p185
Dynamic simulation of gas-turbine generating unit. W.W. Hung C p342
Effect of recombination current on current gain of HBTs. B.R. Ryum and I.M. Abdel-Motaleb G p115
Empirical comparison of methods of fuzzy relational identification. B. Postlethwaite D p199
Fault simulation in CMOS VLSI circuits. M.E. Zaghloul and D. Gobovic E p203
Forces on semi-infinite overlapping rectangular poles: infinity permeable against saturable case. W. O'Connor A p176
General approach for development of CAD-oriented analytical device models. C. Turchetti and M. Conti G p637
Generalised minimum-variance stochastic self-tuning controller with pole restriction. C.C. Hang, K.W. Lim and W.K. Ho D p25
Gross spatial structure of land clutter. S.P. Tonkin and R.A. McCulloch F p99
Hybrid approach for reliability evaluation of composite generation and transmission systems using Monte–Carlo simulation and enumeration technique. R. Billinton and L. Wenyuan C p233
Hybrid state-space self-tuning control using dual-rate sampling. L.S. Shieh, X.M. Zhao and J.W. Sunkel D p50
Identification of generalised models of synchronous machines from time-domain tests. I. Kamwa, P. Viarouge and E.J. Dickinson C p485
K-distributed coherent sea clutter. C.J. Baker F p89
Karhunen–Loeve method for data compression and speech synthesis. C.S. Chen and K.-S. Huo I p377
Measurement and modelling of wideband mobile radio channels at 900 MHz. A.M.D. Turkmani, D.A. Demery and J.D. Parsons I p447
Minimum dimensional state-space formulation of linear systems. S. Atadan G p590
Modelling a laminated brushless exciter-alternator unit in all modes of operation. M.A. Abdel-Halim and C.D. Manning B p87
Modelling and simulation of non-Rayleigh radar clutter. E. Conte, M. Longo and M. Lops F p121
Modelling of capacitively (resistively)-loaded uniform RC lines for computer aided analysis. M.T. Abuelma'atti G p463
Modelling of multiple coupled concentric open and closed microstrip ring structure. S. Luo, M. Thorburn and V.K. Tripathi H p573
Modelling of three-port RF transformers. P. Kreuzgruber, E. Bonek, A.L. Scholtz and J. Österreicher G p325
Modelling of vector controlled cage induction motor with FEM. B. Lemaire-Semail, F. Bouillault and A. Razek B p297
Multipath effects on low-angle tracking at millimetre-wave frequencies. J.A. Bruder and J.A. Saffold F p172
Multivariable self-tuning regulator for load frequency control system with interaction of voltage on load demand. K. Yamashita and H. Miyagi D p177
Neural networks for nonlinear internal model control. K.J. Hunt and D. Sbarbaro D p431
New decomposition-aggregation approach applied to power system with speed governor. H. Shaaban C p434
New lattice realisation of the predictive least-squares order selection criterion. A.K. Nandi and J.A. Chambers F p545
Novel modification on SPICE BJT model to obtain extended accuracy. H. Kuntman G p673
Numerical procedure for simulating the large-signal quantum behaviour of superconducting tunnel-junction circuits. S. Withington and P. Kennedy G p70
Numerical simulation of avalanche photodiodes with guard ring. J. Harari, D. Decoster, J.P. Vilcot, B. Kramer, C. Oguey, P. Salsac and G. Ripoche J p211
On nonuniform packet switched delta networks and the hot-spot effect. P.G. Harrison E p123
Parabolic equation modelling of the effects of multipath and ducting on radar systems. K.H. Craig and M.F. Levy F p153
Parameter transient tracking for recursive estimation. R. Fernandez del Busto, P.E. Welistead and M.B. Zarrop D p68
Partitioning of power networks and applications to security control. V.H. Quintana and N. Müller C p535
Performance estimation of semirandom data transfer within direct hypercube interconnection network. A. Shaout and D. Smyth E p213
Reliability assessment of hydrothermal generation systems containing pumped storage plant. R.N. Allan and J. Roman C p471
Robust identification of stochastic linear systems with correlated noise. C.-B. Feng and W.-X. Zheng D p484
SPICE simulation of nonlinear equations and circuits. Y.S. Lee, M.H.L. Chow and J.S.L. Wong G p273
Signalling efficiency modelling and measurement of simplex block encoded MBC systems. P.S. Cannon and A.H. Dickson I p544
Simulation study of 8PSK and CE16PSK signals for satellite transmissions. S.W. Cheung I p299
Small signal nonquasistatic models for GaAs field effect transistors for implementation in SPICE. Part I: Modulation-doped field effect transistors (MODFETs). H.-K. Lin and I.M. Abdel-Motaleb G p735
Small signal nonquasistatic models for GaAs field effect transistors for implementation in SPICE. Part II: Metal semiconductor field effect transistors (MESFETs). H.-K. Lin and I.M. Abdel-Motaleb G p749
Statistical and numerical method for MOSFET integrated-circuit sensitivity simulation using SPICE. W.W. Wong, R.S. Winton and J. Liou G p77
Statistical modelling and computer simulation of indoor radio channel. R. Ganesh and K. Pahlavan I p153
Statistical study of impulse corona inception parameters on line conductors. N. Harid and R.T. Waters A p161
Study of a five-electrode quadrupole levitation system. Part I: Theoretical aspects. D. Hu and B. Makin A p320
Study of a five-electrode quadrupole levitation system. Part II: Experimental results. D. Hu and B. Makin A p329
Theory of transformer modelling using modal analysis. D.J. Wilcox C p121
Threshold voltage and subthreshold slope of the volume-inversion MOS transistor. J. Brini, M. Benachir, G. Ghibaudo and F. Balestra G p133
Triac model for computer aided analysis and design. G. Arsov G p430
Two-dimensional simulation of thyristor transient states from conduction to forward blocking. Z. Lisik and M. Turowski G p575
Use of SPICE in analogue computation and simulation of systems consisting of circuit components and transfer functions. M.H.L. Chow, Y.S. Lee and J.S.L. Wong G p282
Use of a highly deterministic multipath signal model in low-angle tracking. T. Lo and J. Litva F p163
Verification of an alternating current corona model for use as a transmission line design aid. D.A. Rickard, J. Dupuy and R.T. Waters A p250

SOLAR CELLS

Performance analysis of a solar array under shadow condition. A.K. Sharma, R. Dwivedi and S.K. Srivastava G p301

SOLAR POWER

Microprocessor based automatic sun tracker. A. Konar and A.K. Mandal A p237

SONAR

Constrained adaptation for time delay estimation with multipath propagation. P.C. Ching, Y.T. Chan and K.C. Ho F p453
DOA estimation with unknown noise fields: a matrix decomposition method. R. Rajagopal and P Ramakrishna Rao F p495
Underwater target tracking via the IRWLS filtering approach. F. El-Hawary and G.A.N. Mbamalu F p459

SONICS AND ULTRASONICS

Characterisation of high frequency focused ultrasonic transducers using modulation transfer function: Concept and experimental approach. K. Shiloh, A.K. Som and L.J. Bond A p205

SOUND BROADCASTING AND AUDIO

Analysis and simulation of a hybrid modulation scheme for embedding data in amplitude-modulated signals. G.B. Lockhart and Y.O. Al-Jalili I p426

SPEECH SYNTHESIS

Algorithm for high precision root finding from high order LPC models. M. Sandler I p596
Competitive training: a connectionist approach to the discriminative training of hidden Markov models. S.J. Young I p61
Fast Fourier transform based speech encryption system. S. Sridharan, E. Dawson and B. Goldburg I p215
Finite state CELP for variable rate speech coding. S.V. Vaseghi I p603
Improvements in HMM-based isolated word recognition system. A.M. Peinado, J.M. Lopez, V.E. Sanchez, J.C. Segura and A.J. Rubio Ayuso I p201
Karhunen–Loeve method for data compression and speech synthesis. C.S. Chen and K.-S. Huo I p377
Layered neural nets applied in the recognition of voiceless unaspirated stops. L-C. Liu, L-M. Lee, H-C. Wang and Y-C. Chang I p69
Robust low-complexity backward adaptive pitch predictor for low-delay speech coding. V. Cuperman and R. Pettigrew I p338
The modified Kanerva model: theory and results for real-time word recognition. T.J.W. Clarke, R.W. Prager and F. Fallside F p25
Variation of vector quantisation and speech waveform coding. A.K. Nandi, M.F. Aburdene, A.G. Constantinides and I. Dologlou I p76

STABILITY

Agile computer control and surveillance systems. R. Whalley D p185
Application of power system stabilisers in a plant with identical units. C.S. de Araújo and J.C. de Castro C p11
Feedback stabilisation of synchronous generator by extended linearisation. P. Woźniak and K. Kuźmiński D p363
Linear feedback approach to the stabilisation of uncertain discrete systems. E. Gyurkovics D p507
New bound for the stability margin of linear continuous systems. V. Sreeram and P. Agathoklis D p151
New method of robust pole assignment by output feedback. J. Changsheng D p172
Observations-weighted optimal control of a class of nonlinear systems. M.J. Grimble and S.A. Carr D p160
Open loop stability characteristics of synchronous drive incorporating high field permanent magnet motor. P.H. Mellor, M.A. Al-Taee and K.J. Binns B p175
Optimal switching of dynamic braking resistor, reactor or capacitor for transient stability of power systems. A.H.M.A. Rahim and A.I.J. Al-Sammak C p89
Probabilistic voltage stability indexes. T.A.M. Sharaf and G.J. Berg C p499
Relationship of singular value stability robustness bounds to spectral radius for discrete systems with application to digital filters. J.B. Farison and S.R. Kolla G p5
Robustness effects of a prefilter in generalised predictive control. B.D. Robinson and D.W. Clarke D p2
Simple sufficient test for stability of two-dimensional recursive digital filters. M. Benidir G p731
Stabilised power MOS-bipolar modules. M.J. Lazarus, K.V.O Rabah and P.S. McKeany G p564

Stability of loadflow techniques for distribution system voltage stability analysis. G.B. Jasmon and L.H.C.C. Lee C p479

STANDARDISATION AND STANDARDS

Present state of the electrical units. B.P. Kibble A p187

STEPPING MOTORS

New data base for switched reluctance drive simulation. D.W.J. Pulle B p331

SUPERCONDUCTIVITY

Application of superconducting magnetic energy storage unit on damping of turbogenerator subsynchronous oscillation. Y.-S. Lee and C.-J. Wu C p419
Numerical procedure for simulating the large-signal quantum behaviour of superconducting tunnel-junction circuits. S. Withington and P. Kennedy G p70

SURFACE-ACOUSTIC-WAVE DEVICES (SAW)

Design of surface-acoustic wave devices. R.C. Woods A p181

SWITCHED CAPACITOR FILTERS

Second-order switched capacitor building block and its application to the design of silicon efficient filters. J. Zhong-xuan Zhou G p9
Switched capacitor circuit synthesis using voltage inversion principles. C. Psychalinos, I. Haritantis and D.G. Haigh G p703
Systematic method for the design of multiamplifier switched-capacitor FIR decimator circuits. J.E. Franca and V.F. Dias G p307

SWITCHES AND SWITCHING THEORY

32 × 32 two-dimensional array of vertical to surface transmission electrophotonic devices with a *pnpn* structure. K. Kurihara, Y. Tashiro, I. Ogura, M. Sugimoto and K. Kasahara J p161
Controller design of multivariable variable structure systems with nonlinear switching surfaces. D.S. Lee, M.G. Kim, H.K. Kim and M.J. Youn D p493
Decomposition of output queuing switches. H.S. Kim and A. Leon-Garcia I p407
Design and implementation of a single phase current-forced switching mode bilateral convertor. C.M. Liaw, T.H. Chen, T.C. Wang, G.J. Cho, C.M. Lee and C.T. Wang B p129
Distributed double-phase switch. C.-M. Weng and C.-T. Hwang I p417
Novel PWM-based control strategy of HF link SMR with sinusoidal line current. A. Chibani and M. Nakaoka B p219
Saturable reactor assisted soft-switching full-bridge DC–DC power convertors. S. Hamada, Y. Ogino and M. Nakaoka B p95
Solution for packet switching of broadband ISDN. C.-M. Weng and J.-J. Li I p394
State plane approach to frequency response of resonant convertors. C.Q. Lee, K. Siri and S.J. Fang G p557
Synchronisation of random bit sequences: application to hitless switching. I. Frigyes I p401

SYNCHRONOUS MOTORS

Estimation of parameters and performance of rare-earth permanent-magnet motors avoiding measurement of load angle. P.H. Mellor, F.B. Chaaban and K.J. Binns B p322
High-speed reluctance machines with mixed-pole windings. Z. Zuncheng and E. Spooner B p257
Identification of generalised models of synchronous machines from time-domain tests. I. Kamwa, P. Viarouge and E.J. Dickinson C p485
Magnetic field and eddy current losses in linear and rotating permanent magnet machines with a large number of poles. Z.J. Liu, A. Vourdas and K.J. Binns A p289
Open loop stability characteristics of synchronous drive incorporating high field permanent magnet motor. P.H. Mellor, M.A. Al-Taee and K.J. Binns B p175
Optimal model-following control of a positioning drive system with a permanent-magnet synchronous motor. P.M. Pelczewski, W. Oberschelp and U.H. Kunz D p267
Studies on asynchronous operation of synchronous machines and related shaft torsional stresses. M.A. Masrur, A.K. Ayoub and J.T. Tielking C p47

SYSTEM PROTECTION

Analytical expressions for evaluating screening effect of transmission line earth wire. Lj.M. Popović C p289
Efficient economic dispatch algorithm for thermal unit commitment. K. Mohamed-Nor and A.H.A. Rashid C p213
Ranking of line outages in an AC–DC system causing overload and voltage problems. P.R. Bijwe, J. Nanda and K.L. Puttabuddhi C p207
Statistical study of impulse corona inception parameters on line conductors. N. Harid and R.T. Waters A p161

TELECOMMUNICATION

Adaptive equalisation via Kalman filtering techniques. S. McLaughlin F p388
Analysis of asynchronous multiplexers for periodic traffic in integrated broadband networks. M.E. Anagnostou and P.D. Sparaggis I p481
Convergence behaviour of a jointly adaptive transversal and memory-based echo canceller. K. Yamazaki, S. Aly and D. Falconer F p361
Decomposition of output queuing switches. H.S. Kim and A. Leon-Garcia I p407
Distributed double-phase switch. C.-M. Weng and C.-T. Hwang I p417
Efficient flow control in a multiclass telecommunications environment. C. Douligeris and R. Mazumdar I p494
Optimal design parameters in capacity assignment for a broadband network. Chung-Ju Chang and Yann-Ju Chu I p387
Public telex-to-facsimile network interworking facility. D.D. Ó Séaghdha and P.C. Fannin I p327
Queuing analysis of the selective repeat ARQ scheme. H. Lee and B. Ngo I p487
Simulation study of trellis-coded transceivers for high-bit rate digital subscriber loops. T.D. Bilodeau and W.A. Krzymien I p503
Solution for packet switching of broadband ISDN. C.-M. Weng and J.-J. Li I p394
Suboptimum bit synchronisers for high-speed bandlimited waveforms. A.M.S. Gameiro and J.R.F. da Rocha I p176

TELEPHONE EXCHANGES AND NETWORKS

Convergence behaviour of a jointly adaptive transversal and memory-based echo canceller. K. Yamazaki, S. Aly and D. Falconer F p361

TELEPHONY

Subjective quality quantification of digital voice communication systems. S. Dimolitsas I p585

THYRISTORS

Design of current source using 12-pulse phase-controlled rectifier. B.H. Kwon and E.H. Song B p185
Three-phase flyback AC-DC convertor with sinusoidal supply currents. R. Itoh and K. Ishizaka B p143
Two-dimensional simulation of thyristor transient states from conduction to forward blocking. Z. Lisik and M. Turowski G p575

TRANSDUCERS

Characterisation of high frequency focused ultrasonic transducers using modulation transfer function: Concept and experimental approach. K. Shiloh, A.K. Som and L.J. Bond A p205
Strip speed measurement using distributed infra-red detectors. E.M. Deeley and P. Kontopoulous D p395

TRANSFORMERS

Analysis of distribution transformers under fault conditions for determination of transient recovery voltage. O. Bottauscio, G. Crotti, G. Farina and E. Vecchiotti C p253
Modelling of three-port RF transformers. P. Kreuzgruber, E. Bonek, A.L. Scholtz and J. Österreicher G p325
New Fourier methods for generation system production costing. R. Balasubramanian, P. Mohan and K.S.P. Rao C p384
Theory of transformer modelling using modal analysis. D.J. Wilcox C p121

TRANSIENTS

Analysis of distribution transformers under fault conditions for determination of transient recovery voltage. O. Bottauscio, G. Crotti, G. Farina and E. Vecchiotti C p253
Analysis of transient behaviour of power system circuits containing iron cored coils. S. Ray C p275
Consideration of skin effect in high-voltage coaxial systems under transient and steady-state conditions, and its impact on steep travelling waves. I.R. Jandrell and J.P. Reynders C p445
New decomposition-aggregation approach applied to power system with speed governor. H. Shaaban C p434
Simple approach to calculation of power system transients using the *Z*-transform. Y.P.J.M. Ponsioen C p297
Stochastic model for power system planning studies. C.O. Nwankpa and S.M. Shahidehpour C p307

TRANSISTORS

Amorphous Si/SiC phototransistors and avalanche photodiodes. C.Y. Chang, J.W. Hong and Y.K. Fang J p226
Analogue adaptive neural network circuit. M.L. Chiang, T.C. Lu and J.B. Kuo G p717
Effect of recombination current on current gain of HBTs. B.R. Ryum and I.M. Abdel-Motaleb G p115
Fabrication of PMOS transistors by dopant implantation into $TiSi_2$. K.J. Barlow G p587
Harmonic and intermodulation performance of analogue CMOS circuits owing to mobility reduction. M.T. Abuelma'atti G p65
Novel cell architecture for bit level systolic arrays multiplication. D. Ait-Boudaoud, M.K. Ibrahim and B.R. Hayes-Gill E p21
Switching properties of polysilicon emitter transistor operating in saturation. A. Srivastava G p358
Temperature effects on high power low on-resistance MOS-bipolar transistor module. K.V.O. Rabah G p510

TRANSMISSION LINES

An improvement to the transmission line model of the folded dipole. A.R. Clark and A.P.C. Fourie H p577
Analytical expressions for evaluating screening effect of transmission line earth wire. Lj.M. Popović C p289
Application of series-capacitor and shunt-reactor compensation to an existing practical AC transmission line. M. El-Marsafawy C p330
Development of ferrite line pulse sharpeners for repetitive high power applications. R. Pouladian-Kari, A.J. Shapland and T.M. Benson H p504
Hybrid quasistatic analysis for multilayer coplanar lines. C.-N. Chang, Y.-C. Wong and C.H. Chen H p307
Integrated mode-locked laser design with a distributed-Bragg reflector. A.J. Lowery J p39
Method of equal probability overvoltages for calculating risk of failure of power transmission lines. M. Gavric' C p19
New measures for assessing the inductive influence of multiconductor transmission lines. G.R. Cameron and P.S. Bodger C p358
Space and time continuous lumped transmission line model. C. Breitholtz, M. Molander and R. Navarro-Adlemo G p661
Statistical study of impulse corona inception parameters on line conductors. N. Harid and R.T. Waters A p161

TRANSMITTERS

Bandwidth efficient QAM schemes for Rayleigh fading channels. W.T. Webb, L. Hanzo and R. Steele I p169
Vector circuit method for calculating reflection and transmission of electromagnetic waves in multilayer chiral structures. M.I. Oksanen, J. Hänninen and S.A. Tretyakov H p515

VERY LARGE SCALE INTEGRATION

Application of a systolic macrocell-based VLSI design style to the design of a single-chip high-performance FIR filter. R. Roncella, R. Saletti, P. Terreni and D. Piatelli G p17

Balanced high-speed residue number VLSI multiplier with error detection. H.-Y. Lo and T.C. Yang **G** p421
CMOS VLSI design of a high-speed Fermat number transform based convolver/correlator using three-input adders. M. Benaissa, S.S. Dlay and A.G.J. Holt **G** p182
Expert compactor: a knowledge-based application in VLSI layout compaction. P.-Y. Hsiao and C.-C. Tsai **E** p13
Fabrication of PMOS transistors by dopant implantation into $TiSi_2$. K.J. Barlow **G** p587
Hebbian plasticity in MOS synapses. H.C. Card, C.R. Schneider and W.R Moore **F** p13
Pseudorandom number generators for VLSI systems based on linear cellular automata. Ph. Tsalides, T.A. York and A. Thanailakis **E** p241
Semisystolic architecture for fast Hartley transform: decimation in frequency and radix 2. F. Argüello, R. Doallo and E.L. Zapata **G** p651
Systolic realisation for 2-D convolution using configurable functional method in VLSI parallel array designs. Che Wengang, Li Yanda and Jiao Yue **E** p361
Tagged systolic array. S. Sarkar and A.K. Majumdar **E** p289
Test pattern generation for logic crosstalk faults in VLSI circuits. A. Rubio, J.A. Sainz and K. Kinoshita **G** p179
VLSI design of inverse-free Berlekamp–Massey algorithm. I.S. Reed, M.T. Shih and T.K. Truong **E** p295
VLSI implementation of Tausworthe random number generator for parallel processing environment. J. Saarinen, J. Tomberg, L. Vehmanen and K. Kaski **E** p138
VLSI implementation of smart imaging system using two-dimensional cellular automata. A.P. Marriott, Ph. Tsalides and P.J. Hicks **G** p582

VIBRATION

Variation of turbogenerator stator core vibration with load. A.A. Tampion, R.L. Stoll and J.K. Sybulski **C** p389
Vibration characteristics of motors with dynamic absorbers. A. Tozune **B** p21

VOICE COMMUNICATION

Subjective quality quantification of digital voice communication systems. S. Dimolitsas **I** p585

WAVEGUIDES AND WAVEGUIDE COMPONENTS

Accurate numerical analysis of polarisation-preserving optical fibre with three-layer elliptical cross-section. T. Miyamoto **J** p1
Analysis of a post with arbitrary cross-section and height in a rectangular waveguide. Y. Huang, N. Yang, S. Lin and R.F. Harrington **H** p475
Analysis of a variable height metallic strip in a rectangular waveguide. A. Datta, B.N. Das and A. Chakraborty **H** p386
Analysis of rectangular corrugated structures. L.C. da Silva and S. Ghosh **H** p335
B.N. Das:P.V.D. Somasekhar Rao:. **H** p265
Backward-wave suppression in a very wide-band helix travelling-wave tube using a slow waveguide filter. A.J. Sangster, A. Swan and E.P. Livingston **H** p79
Characterisation of proton-exchanged and annealed proton-exchanged planar waveguides in z-cut $LiNbO_3$. G.L. Yip and J. Nikolopoulos **J** p389
Comparison between different rectangular horn elements for array antenna applications. E. Lier, S. Rengarajan and Y. Rahmat-Samii **H** p283
Design and fabrication of packaged InP/InGaAsP multiple quantum well waveguide components with very low insertion loss. T.G. Lynch, M.D.A. MacBean, R.H. Walling and A.R. Thurlow **J** p319
Determination of sever positions in coupled-cavity TWTs. V. Srivastava and R.G. Carter **H** p55
Dispersion curves and fields for a chiral slab waveguide. M. Oksanen, P.K. Koivisto and I.V. Lindell **H** p327
Double valued phase constants in gyrotropic waveguides. A.A.P. Gibson, R. Sloan, L.E. Davis and D.K. Paul **H** p258
Electromagnetic wave propagation along a chiral slab. H. Cory and I. Rosenhouse **H** p51
Flanged parallel-plate waveguide coupled to a conducting cylinder. C.M. Butler, C.C. Courtney, P.D. Mannikko and J.W. Silvestro **H** p549
Generalised field theory of irregular waveguide partially filled with longitudinally magnetised ferrite. Y. Rong, W.-B. Dou and S.-F. Li **H** p412
Hybrid quasistatic analysis for multilayer coplanar lines. C.-N. Chang, Y.-C. Wong and C.H. Chen **H** p307
Nonlinear TE waves in asymmetric dielectric hollow waveguides with a self-focusing Kerr-like nonlinear film. S. Okafuji and Y. Nakai **J** p204
Numerical analysis of the characteristics of TE-modes of waveguides loaded with inhomogeneous dielectrics. J.-G. Ma **H** p109
On the convergence of matrix elements in planar and waveguide problems. R. Kastner **H** p532
Optical probing of millimetre waves in semiconductor waveguides. A. Alphones and M. Tsutsumi **H** p460
Propagation and radiation characteristics of rectangular dielectric-loaded hybrid mode horn. E. Lier and C. Stoffels **H** p407
Rigorous analysis of the TM_{0n} modes in a dielectric-post resonator with an annular slot in the upper plate. K.A. Michalski, X. Di and A.W. Glisson **H** p429
Theory for cylindrical, open ended, complex cavities supporting all TE_{0n} modes: Gyrotron application. L. Jiang and R.A. Schill **H** p297
Thermal index guiding in (AlGa)As proton-isolated lasers: its origins and reduction by post-implantation heat treatment. A. Malag, K. Czarnecki and K. Fronc **J** p13